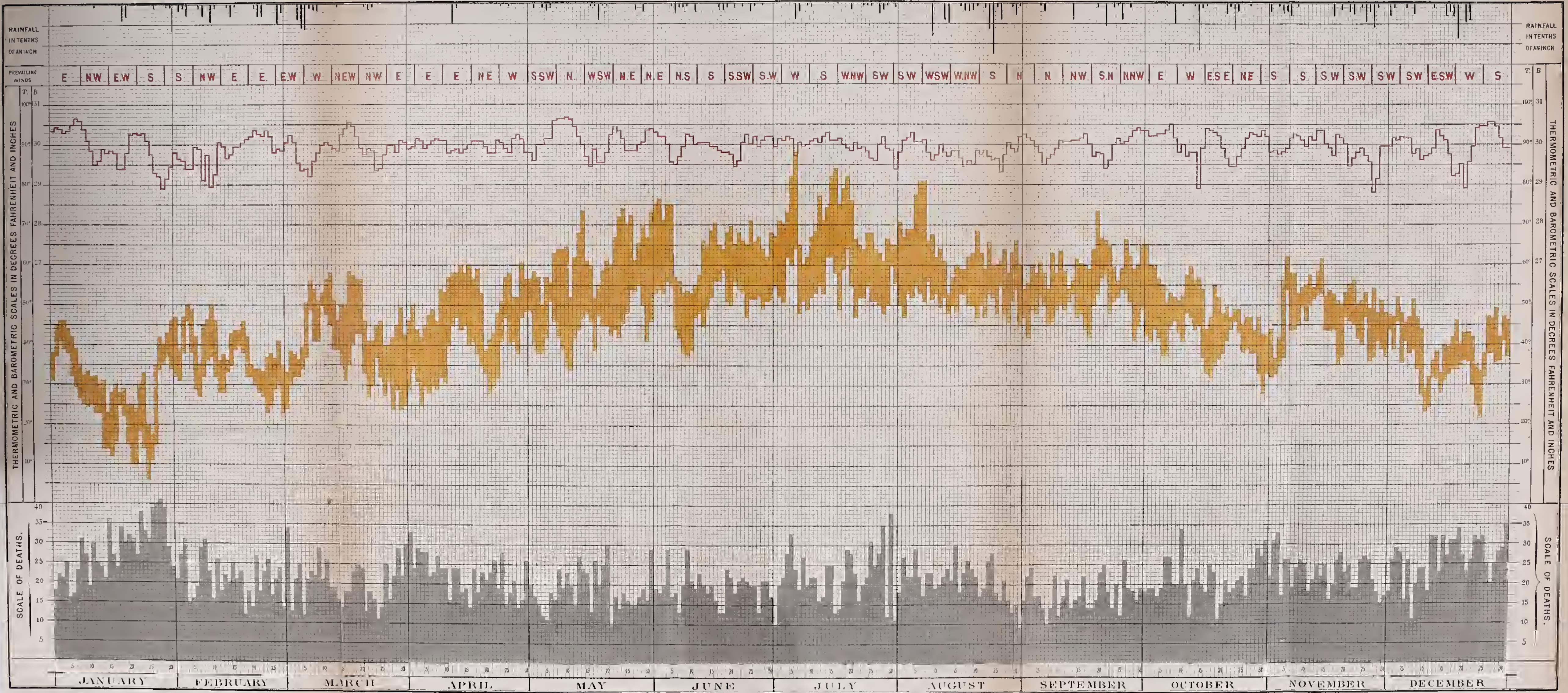
Borough of Birmingham.

Chart illustrating the relations of the number of deaths to the principal meteorological conditions on each day of the year 1881.



MORTALITY: ▭ METEOROLOGY: ▬ Temperature (maximum and minimum) —— BAROMETRIC PRESSURE (corrected and reduced to 32° Fahrenheit and sea level) —— RAINFALL.

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REPORT

ON THE

HEALTH OF THE BOROUGH

OF

BIRMINGHAM,

FOR THE YEAR 1881,

ALSO,

ON THE PROCEEDINGS TAKEN UNDER THE ACT FOR THE

PREVENTION OF ADULTERATION

OF ARTICLES OF FOOD AND DRINK,

BY

ALFRED HILL, M.D., F.I.C,
Medical Officer of Health,
and
Analyst to the Borough.

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HEALTH DEPARTMENT,
THE COUNCIL HOUSE,
Birmingham, March 25th, 1882.

TO THE HEALTH COMMITTEE.

MR CHAIRMAN AND GENTLEMEN,

In submitting my Report for the year 1881, it is my agreeable duty to have to announce that the improvement in the Health of the Borough, which I was able to report last year, has still continued, as shown in a diminished general and zymotic death-rate. In my Report for the year 1880, I showed that the death-rate was lower than it had been in any of the preceding fifteen years; it is a source of much pleasure to me now to report that the death-rate of 1881 shows a further decline, so that the mortality is less than at any time during the preceding sixteen years, or from 1865, in which year available statistics of any value for comparison commenced.

I. VITAL STATISTICS.

Population

The Population of the Borough at the middle of the year 1881, as calculated from the Census taken April 1st of the same year, was 402,296.

Census, 1881

The result of the Census taken last year shows that the recent estimates of the gross population have been fairly correct. The number of persons enumerated on the morning of the 1st of April last, subject to revision, was 400,757, the number raised to the middle of the year being estimated at 402,296. Previous to the taking of the Census, the Registrar General's estimate of the population at the middle of the year, was 400,680; the figures for June, based on the Census of the previous April, are thus seen to be 1,616 more than the latter estimate, a difference so slight, however, that it may be practically disregarded as a source of error in the calculations of recent reports.

Census, 1871

The Census of 1871 revealed the fact that the population of the Borough had been previously over-estimated by as much as 33,594, and, consequently, that both the birth and death-rates had been stated considerably lower than they would have been, if the estimate of the population had been a correct one.

Calculation of Death-rate rather too high than too low

It is most gratifying to find that, low as the death-rate has been in recent years, none of the reduction is due to the calculations being based on a higher estimate of population than they should have been, but that on the contrary it is probable that for the past few years the rates of mortality have been set forth fractionally higher than they really were.

Natural increase of Population

The natural increase of the population, that is, the excess of Births over Deaths, was 6,931, showing an increase upon 1880 provided the same number of persons came into the town as left it, equal to 1·7 per cent.; the increase last year upon 1879 was 1·8 per cent.

Area

Density

The area of the Borough remains at 8,400 acres, so that the average number of persons per acre, supposing the population to be equally distributed, which, however, it is of course far from being, is 47·9 as compared with 47 in the preceding year, and 42·4 in 1873. It is well known that increased density of population is one of the most powerful agencies in raising the amount of sickness and mortality, whereas with a constantly progressing density in Birmingham, we have of late years enjoyed a diminishing rate of mortality. This result must be taken as a positive proof of the practical value of the sanitary measures so energetically promoted by your Committee.

The following statement contains estimates of the population at the middle of 1881, the number of persons to the acre, and the total death-rate in some of the principal towns of the kingdom for the year in question.

	Estimated Population, 1881.	No. of Persons per Acre.	Death-rate.
London	3,829,751	50·8	21·2
Liverpool	553,988	106·3	26·7
Birmingham ...	**402,296**	**47·9**	**19·7**
Manchester ...	341,269	79·5	25·5
Sheffield ...	285,621	14·5	21·1
Leeds	310,490	14·4	21·6
Salford	177,760	34·4	22·6
Newcastle-on-Tyne	145,675	27·1	21·8
Norwich	88,038	11·8	19·5
Glasgow	511,034	84·0	25·0
Dublin	348,525	14·1	27·0

Elevation

The elevation of the Borough, that is, its height above the mean level of the sea, varies between 310 and 600 feet, the lowest point being at Saltley, and the highest at Edgbaston.

Geological position

This lofty position is in many respects a considerable advantage, especially when associated, as it is in the case of Birmingham, with a porous soil consisting of the upper division of the Bunter or Mottled beds of the Trias or Upper New Red Sandstone.

MARRIAGES.

Marriages

The number of Marriages in the Borough last year was 3,261, against 3,304 in 1880, and is equal to a rate of 16·2 per 1,000 of the population.

In the statement below are to be found the Marriage statistics for the last ten years in the Birmingham Parish; I am unable to obtain the figures for the whole Borough during the same period.

Marriages in the Parish of Birmingham

Year ...	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881
No. of Marriages...	2,488	2,498	2,315	2,520	2,521	2,395	2,100	2,052	2,100	2,118
Rate per 1,000 of the Population	21·6	21·7	19·5	21·1	20·8	19·7	17·0	16·6	16·9	18·3

Marriage Rate

From the rates above given it appears that the Marriage Rate has increased from 16·9 to 18·3, while the actual number of marriages is only eighteen more in 1881 than in 1880; such an additional number is of course out of proportion to the difference between the marriage rates of the last two years; the explanation of the inaccuracy is that the census of 1881 proves that the previous estimates of population of the Parish of Birmingham had been too high, and as a consequence the calculated marriage rates for several years previously came out too low.

The

BIRTHS

Births

registered during the year amounted to 14,869, as compared with 15,111 last year, 15,846 in 1879, 15,964 in 1878, and 16,001 in 1877, showing a progressive decline over the last five years notwithstanding a continuous increase of population.

	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.	Birth-rate.
1873.						
Total ...	3,741	3,564	3,378	3,814	14,497	40·78
Males ...	1,892	1,783	1,715	1,950	7,340	
Females ...	1,849	1,781	1,663	1,864	7,157	
1874.						
Total ...	3,814	3,871	3,493	3,710	14,888	41·25
Males ...	1,953	1,961	1,753	1,853	7,520	
Females ...	1,861	1,910	1,740	1,857	7,368	
1875.						
Total ...	3,787	3,737	3,581	3,757	14,862	40·57
Males ...	1,929	1,884	1,815	1,904	7,532	
Females ...	1,857	1,853	1,766	1,853	7,329	
Sexless ...	1	—	—	—	1	
1876.						
Total ...	4,140	3,924	3,803	3,949	15,816	42·53
Males ...	2,045	1,996	1,959	2,028	8,028	
Females ..	2,095	1,928	1,844	1,921	7,788	
1877.						
Total ...	4,296	4,009	3,769	3,927	16,001	42·39
Males ...	2,139	2,015	1,878	2,037	8,069	
Females ...	2,157	1,994	1,891	1,890	7,932	

Births *continued*

1878.						
Total ...	4,139	4,096	3,849	3,880	15,964	41·67
Males ...	2,160	2,051	1,962	1,982	8,155	
Females ...	1,979	2,045	1,887	1,898	7,809	
1879.						
Total ...	4,124	3,912	3,723	4,087	15,846	39·98
Males ...	2,086	1,992	1,878	2,096	8,052	
Females ...	2,038	1,920	1,845	1,991	7,794	
1880.						
Total ...	3,964	4,104	3,572	3,471	15,111	38·28
Males ...	2,023	2,100	1,762	1,802	7,687	
Females ...	1,941	2,004	1,810	1,669	7,424	
1881.						
Total ...	3,965	3,754	3,560	3,590	14,869	36·96
Males ...	1,991	1,893	1,804	1,822	7,510	
Females ...	1,974	1,861	1,756	1,768	7,359	

Birth-rate

This Birth-rate is lower than in any year since 1870, when it was 35 per 1,000. The decline commenced in 1877, and has continued uninterruptedly, and a similar decline has been observable during the same period all over the country.

Towns compared

The following statement gives a comparison of the Birth-rate of Birmingham, with the rates of the principal large towns :—

Average of 20 large Towns.	London	L'pool.	**Birm.**	Manch.	Leeds	Sheffield	Salford	N'cstle.	Norw'h.
35·6	34·8	37·6	**37·0**	36·9	36·8	38·0	38·8	36·8	33·6

VACCINATION.

Vaccination in Birmingham Parish

It will be seen by the returns set forth in Table XVI. that of 9,009 children whose births were registered in the Parish of Birmingham, during the year ended on the 30th of last June, 7,868 or 87·3 per cent. were successfully vaccinated, 867 or 9·6 per cent. died without being Vaccinated, and 148 or 1·6 per cent. of the remaining children had been taken to other Districts, and were therefore out of the jurisdiction of the Birmingham Parish Authorities. The other children not thus accounted for, had either been removed to other Parishes, the Vaccination Officer of which had been apprised of the fact of removal, or their vaccination had been postponed on the production of a medical certificate stating their unfitness to undergo the operation.

Aston Parish

In that portion of Aston Parish within the Borough, out of 5,538 births registered during the same period of time, 4,609 or 83·2 per cent. were vaccinated with success, 570 or 10·3 per cent. died before the operation could be performed, and 359 or 6·5 per cent. remained unvaccinated at the close of the time to which these statistics refer, almost entirely owing to the parents of the children having gone to reside in a District unknown to the Vaccination Officer. The births registered during the same period, in that portion of the Borough within the Parish of Edgbaston, numbered 465, and of these 378 or 81·3 per cent. were satisfactorily vaccinated. For full details of the returns, see Table XVI., the statistics of which have been kindly supplied me by Mr. Wilcox, Vaccination Officer, of the Birmingham Parish; by Mr. Stephens, Vaccination Officer, of the Aston Parish; and by Mr. E. Docker, Vaccination Officer, for the Parish of Edgbaston.

Edgbaston Parish

The returns are not made up to the close of the Registration year, owing to the fact that it is impossible to obtain the necessary data until at least some three months after the birth of the children to which the figures relate.

DEATHS.

Deaths

The deaths registered during the year numbered 7,938, comprising those of 4,049 males, and 3,889 females. In 1880 there were 8,088 deaths, and even taking the average number of deaths for the ten years 1871 to 1880, when the population was very much less, it is found to be as high as 8,873, showing a very large saving of life. It is also well worthy of notice that the actual number of deaths per annum, in spite of a rapidly increasing population, is less than in 1865 when the population was estimated at only 327,842, or more than 74,000 less than at present; this is equal to a saving of 1,825 lives, supposing the population at the two dates to be equal. The saving of life involved in the difference between the mortality of 1880 and 1881 is equal to 150 lives, disregarding corrections for growth of population and increase of density.

Saving of life

Death-rate

The death-rate for 1881 is 19·73, or 0·77 less than last year, when the lowest mortality on record down to that time had been reached, and it is 4·38 less than the average death-rate of the preceding sixteen years. Another way of expressing the death-rate is to state that of 51 persons living one died during the year, while in 1880 of 49 persons living one died. Compared with the twenty principal towns of England we stand favourably, their average death-rate being 21·7.

The table next following, among other particulars, shows the mortality for each year since my entering upon the duties of Medical Officer of Health in 1873, and excepting the two epidemic years of 1874 and 1878, exhibits a gradually declining mortality.

Causes of reduction in death-rate

The reduction in the Death-rate, in 1881, is to be attributed principally to the following conditions, which also appertained last year.

1.—The non-occurrence of any serious prevalence of Small Pox, Scarlet Fever or Measles.

2.—The absence of distress on the one hand, or of a too flourishing state of trade, leading to intemperance and excess, on the other.

3.—The cheapness of the prime necessaries of life.

4.—The coolness of the latter part of the Summer, which was therefore unfavourable to the excessive development of Diarrhœa, and the mild weather at the end of the year.

5.—The Sanitary work actively prosecuted by the Corporation.

Discrepancy between the Registrar General's and own figures

It is desirable to state that the Death-rate here given, as calculated from the Registration Returns, will prove to be somewhat lower than that which will be published by the Registrar General, owing to the circumstance that the latter authority includes Paupers belonging to the Borough of Birmingham, who die in the King's Norton and Erdington Workhouses; this difference, however, will only be fractional. It is probable that the number of persons who come into the Borough, and particularly into its Medical Institutions, and die there, is considerably in excess of those who go out of it into the Workhouses above-named.

Mortality in Institutions

The mortality of the various Institutions of the Borough, exclusive of the Workhouse, is 1·4 per 1,000, while inclusive of that establishment, it is 2·8 per 1,000 of the population.

The following Table gives the estimated population, number of persons per acre, the total numbers of Registered Births and Deaths, and the Birth-and Death-rates for each year since 1864 :—

Year.	Population Estimated in the middle of each year.	Density. Persons per acre.	Births.	Deaths.	Annual Rate per 1,000 living, Births.	Deaths.
1865	The Estimate of Population in these years is not to be relied on.	—	12,699	8,014	38·87	24·5
1866		—	12,877	8,042	38·48	24·0
1867		—	13,029	8,318	38·01	25·6
1868		—	12,992	8,548	36·31	25·9
1869		—	12,779	7,737	35·53	23·1
1870		—	12,922	7,805	35·00	23·0
1871	344,980	41·1	13,443	8,594	39·00	24·9
1872	350,164	41·7	14,123	8,048	40·50	23·1
1873	355,540	42·4	14,497	8,990	40·78	24·8
1874	360,892	43·0	14,888	9,665	41·25	26·8
1875	366,325	43·6	14,862	9,668	40·57	26·3
1876	371,839	44·3	15,816	8,330	42·53	22·4
1877	377,436	44·9	16,001	9,038	42·39	23·9
1878	383,117	45·6	15,964	9,662	41·67	25·2
1879	388,884	46·3	15,846	8,650	39·98	21·8
1880	394,738	47·0	15,111	8,088	38·28	20·5
1881	402,296	47·9	14,869	7,938	36·96	19·7

Comparative Death-rates of Birmingham and large towns

As it is both interesting and instructive to compare the Death-rates of Birmingham and other large towns, I give below a statement showing the Death-rate per thousand of the inhabitants, for the present and eight preceding years.

DEATH-RATE PER 1,000 PERSONS LIVING.

	Average of 20 large English Towns.	London	L'pool	**Birm.**	Manch.	Leeds	Sheff'ld	Salford	N'cstle	Norw'h
1881 ...	21·7 ...	21·2	26·7	**19·7**	25·5	21·6	21·1	22·6	21·8	19·5
1880 ...	22·6 ...	22·2	27·3	**20·5**	25·4	21·0	21·1	25·9	22·0	24·7
1879 ...	23·2 ...	23·3	27·1	**21·8**	26·9	22·6	21·3	24·9	23·6	22·0
1878 ...	24·4 ...	23·5	29·4	**25·2**	27·9	23·8	25·0	25·6	23·8	24·6
1877 ...	22·8 ...	21·9	26·5	**23·9**	27·4	22·3	21·9	25·1	22·4	21·0
1876 ...	23·6 ...	22·3	27·6	**22·4**	29·2	25·1	24·3	31·9	22·8	21·9
1875 ...	25·4 ...	23·7	27·5	**26·3**	29·9	26·4	24·8	31·5	26·1	24·5
1874 ...	25·4 ...	22·5	32·0	**26·8**	30·4	28·7	26·9	29·6	29·2	23·5
1873 ...	24·4 ...	22·5	25·9	**24·8**	30·1	27·6	25·8	29·3	30·1	21·5

The subjoined statement gives the total number of deaths, the sex, and the Death-rate for each quarter of the year, together with the totals for 1881, and the four preceding years:—

	1st Quar.	2nd Quar.	3rd. Quar.	4th Quar.	Total 1881.	Total 1880.	Total 1879.	Total 1878.	Total 1877.
Total...	2,133	1,836	1,858	2,111	7,938	8,088	8,650	9,662	9,038
Males	1,071	964	970	1,044	4,049	4,230	4,500	5,086	4,745
Females	1,062	872	888	1,067	3,889	3,858	4,150	4,574	4,292
Sex not known ...	—	—	—	—	—	—	—	2	1
Death-rate	21·29	18·25	18·47	20·99	19·73	20·49	21·82	25·20	23·95

Distribution of deaths among Registration Sub-Districts

The deaths were distributed among the eight Registration Sub-Divisions, in this and the three preceding years, as follows:—

	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	Total 1881	Total 1880	Total 1879	Total 1878	Death rate 1881
Ladywood ...	226	201	243	237	907	892	1,026	1,154	17·8
St. Thomas ...	214	179	195	195	783	809	887	909	20·1
St. Martin ...	202	165	188	206	761	870	868	1,070	18·2
St. George ...	394	337	369	425	1,525	1,453	1,649	1,823	23·5
All Saints' ...	403	355	312	366	1,436	1,359	1,484	1,603	28·9
Deritend ...	378	296	273	365	1,312	1,443	1,394	1,552	17·2
Duddeston ...	256	240	234	258	988	1,024	1,071	1,260	17·9
Edgbaston ...	60	63	44	59	226	238	271	291	7·6

On comparing the figures for 1881, with those of the previous year, it will be found that there has been a rise in the number of deaths in the Registration Districts of Ladywood, St. George, and All Saints, but a diminished number in each of the other Districts; the decrease is most conspicuous in the Registration Sub-District of St. Martin.

Errors in estimating the population of Registration Sub-Districts

The last census reveals the fact that the recent estimates of population in the several Registration Sub-Districts, based on the rate of increase prevailing in each Sub-District during the decade, 1861-71, have been in most cases far from correct.

Errors in estimating the population of Registration Sub-Districts *continued*

It now appears that during the last 10 years, the rate of increase of population has been smaller in Ladywood, St. Thomas, St. Martin, and St. George, but larger in the other Districts, so that the *Death-rate* has been for some years understated in the Districts named above, but made to appear higher than it should have been in the Sub-Districts of All Saints', Deritend, Duddeston, and Edgbaston; this has been especially the case in the Registration Sub-District of Deritend, where the population has increased at a very rapid rate during the last decade. The explanation of this is that the estimates have been made on the assumption that the populations of each Sub-District have increased in the same proportion as during the previous decade, whereas the fact is, that the out-lying Districts have increased in their population, much more rapidly than the central ones, for the simple reason that the former have more space for the extension of buildings and consequent growth of population.

Causes of death-rates appearing too high in certain Sub-Districts

Certain Districts appear to have a much higher Death-rate than really belongs to them, owing to their having Public Institutions situate within them, *e.g.*, a subtraction of the deaths in the General Hospital from the total mortality returns of St. George's Sub-District reduces the Death-rate of that District from 23·5 to 19·8, while by eliminating from Saint Thomas' Sub-District the deaths in the Queen's Hospital, its Death-rate is brought down to 17·0.

The exclusion of the deaths that have been registered in the Workhouse Asylum and Borough Hospital, from the figures for All Saints' Sub-District, makes the Death-rate of that Sub-District appear as 17·1 instead of 28·9, as it now actually does, while, if a similar allowance be made in the figures for Ladywood, with regard to the deaths in the Children's Hospital, the Death-rate of that Sub-District would be only 16·3 per thousand.

Distribution of deaths among the Wards

The Distribution of Deaths among the sixteen Wards of the Borough, for the year, and for each quarter of the year, is as follows:—

	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	Total.
Rotton Park (W., B.H.) ...	284	269	236	254	1,043
All Saints' (L.)	159	128	127	200	614
Ladywood (H.)	123	92	146	125	486
St. Paul	97	90	81	92	360
St. George	118	95	112	159	484
St. Stephen	98	113	103	87	401
St. Mary (H.)	171	152	153	157	633
St. Bartholomew	156	111	119	133	519
Market Hall...	89	57	75	87	308
St. Thomas (H.)	147	120	122	140	529
St. Martin	91	78	97	91	357
Edgbaston	76	89	60	66	291
Deritend	153	95	102	120	470
Bordesley	148	142	125	175	590
Duddeston	99	102	86	100	387
Nechells	124	103	114	125	466

Ward Populations

These figures are of much less value than they would be, if the population of the several Wards was known. As the population of each Ward is not known, it is impossible to make an estimate of their Death-rates, and consequently of their relative sanitary condition.

Distribution of deaths among the ætal periods

The statement below shows the number of Deaths at various ætal periods for each quarter of 1881, and the totals for that and the two preceding years :—

	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	Total 1881.	Total 1880.	Total 1879.
Under 1 year of age ...	529	465	625	593	2,212	2,601	2,385
Between 1 and 5 years ...	323	342	326	438	1,429	1,442	1,710
„ 5 „ 20 „ ...	105	121	126	142	495	488	564
„ 20 „ 40 „ ...	273	239	226	240	978	925	971
„ 40 „ 60 „ ...	406	316	259	338	1,319	1,235	1,333
At 60 years and upwards...	497	353	296	360	1,506	1,397	1,686

A comparison of the figures at the several ætal periods for 1880 and 1881, indicates that the deaths have largely decreased at the ætal periods under five years of age, but have increased at the other periods of life. The very large reduction in Infant Mortality is to be ascribed chiefly to the smaller fatality of Diarrhœa last Autumn, than in the Autumn of 1880.

Average age at death

The average age at death for each quarter of the last two years, has been as follows :—

	1881.	1880.
First Quarter ...	31 years and 2 months.	27 years and 2 months.
Second „ ...	27 „ „ 8 „	25 „ „ 2 „
Third „ ...	22 „ „ 11 „	18 „ „ 8 „
Fourth „ ...	24 „ „ 4 „	27 „ „ 0 „
Whole Year ...	26 „ „ 7 „	24 „ „ 3 „

There is a higher Death-age in 1881 than in the previous year, which is probably the result of the smaller mortality from Autumnal Infantile Diarrhœa. The Death-age together with the Death-rate is delineated in the appended chart for each week of the year.

INFANT MORTALITY.

Infant mortality

The number of deaths of infants under one year of age, was last year 2,212, equivalent to an annual rate of 15·0 per cent. of the Births Registered, and is smaller than in any year since 1872, except in the year 1879, when the rate was also 15·0 per cent. The average rate in Birmingham for the last eight years has been 17·1 ; the percentage figure in 1875 was as high as 19·6. The corresponding rate for the whole of England and Wales was last year 13·0.

Percentage of deaths on births

The percentage of Deaths of Infants under one year of age on the Births registered in Birmingham and the principal large English towns during the nine years 1873–1881 are stated below:—

	Average of 20 large Eng'h Towns	Lond.	L'pool.	**Birm.**	Manch.	Leeds	Sheff'ld	Salf'd.	N'cstle.	Norw'h
1881...	15·2	...14·8	17·3	**15·0**	16·1	16·7	15·5	16·3	15·3	14·7
1880...	17·0	...15·8	19·1	**17·2**	18·0	17·4	16·5	20·0	17·1	21·6
1879...	15·1	...14·8	16·3	**15·0**	16·5	16·1	15·3	17·0	14·5	15·9
1878...	17·2	...16·4	19·3	**17·0**	17·5	18·8	17·6	18·5	16·1	21·1
1877...	15·4	...14·6	18·8	**16·4**	16·1	16·5	16·1	16·1	15·1	15·4
1876...	16·7	...15·7	20·8	**16·0**	18·0	18·1	16·9	18·9	16·7	17·8
1875...	17·6	...16·2	21·0	**19·6**	18·4	19·7	17·6	17·8	18·7	21·0
1874...	17·5	...15·6	23·3	**17·8**	19·7	19·9	18·8	18·9	19·8	17·8
1873...	17·4	...16·0	21·3	**18·1**	20·0	19·4	18·0	18·5	18·7	16·1

Percentage of deaths on total deaths

The percentage of Deaths under one year on the Deaths at all ages in the large English towns for the last nine years has been as follows:—

	Average of 20 large Eng'h Towns	Lond.	L'pool.	**Birm.**	Manch.	Leeds	Sheff'ld	Salf'd.	N'cstle.	Norw'h
1881...	24·9	...24·1	24·4	**27·7**	23·3	28·5	27·9	27·9	25·8	25·5
1880...	26·8	...25·7	26·7	**32·1**	24·0	29·4	27·5	29·3	28·0	30·0
1879...	23·9	...23·2	23·3	**27·5**	22·4	26·3	25·6	27·3	22·6	24·7
1878...	26·5	...25·2	25·5	**28·6**	24·0	31·0	26·5	30·5	25·8	28·7
1877...	25·5	...24·1	27·5	**29·1**	22·6	29·7	25·5	27·1	26·6	24·7
1876...	26·9	...25·7	29·6	**30·5**	24·5	29·9	28·6	29·2	30·4	27·0
1875...	26·2	...24·4	29·4	**30·6**	24·3	30·1	29·2	26·7	29·1	28·0
1874...	26·4	...24·9	28·2	**27·8**	25·4	28·8	29·2	28·2	27·5	24·0
1873...	27·0	...25·2	30·4	**29·2**	25·7	28·0	29·7	27·2	27·1	24·5

Diminution of Infant mortality

A very marked diminution in the Deaths of Children under one year is thus seen to have taken place during the year in question, a larger diminution than has occurred in any previous year, and reaching also an actually lower point than in any of the preceding eight years excepting 1879. The improvement upon last year is also greater than in any of the large towns compared, except Norwich, where it is practically the same.

Deaths under 5 years

The number of Deaths under five years of age in 1881, is 3,741, against 4,043 in 1880, which is equal to a percentage on total deaths of 47·1, against 49·9 in 1880.

Inability to obtain certain census statistics

I had hoped to be able this year to obtain from the Census of 1881, such information as would render it possible to state the rate of mortality in persons living at each ætal

Census statistics *continued*

period, instead of at all ages, as such a statement would have been a much surer indication of the state of the public health of the town, but I greatly regret to say my attempts in this direction have been unsuccessful.

The subjoined Table gives particulars of infant mortality and the Deaths and Death-rate from all causes, and from Zymotic diseases at certain ages during this and the previous seven years :—

ANALYSIS OF THE MORTALITY IN THE BOROUGH OF BIRMINGHAM, IN EACH OF THE NINE YEARS, 1873 to 1881.

YEAR.	Deaths of Infants under 1 year.	Proportion of Deaths under 1 year to 1,000 Births.	DEATHS.				Annual Rate per 1,000 living.			
			AT ALL AGES.		FROM ALL CAUSES.		AT ALL AGES.		FROM ALL CAUSES.	
			From all Causes.	From Seven Zymotic Diseases.	Of Children under 5 years.	Of Persons over 60 years.	From all Causes.	From Seven Zymotic Diseases.	Of Children under 5 years.	Of Persons over 60 years.
1873	2627	18·1	8990	2042	4424	1521	24·8	5·6	12·4	4·3
1874	2688	17·8	9665	2652	4589	1459	26·8	7·3	12·7	4·4
1875	2957	19·6	9668	2145	4785	1590	26·3	5·9	13·0	4·3
1876	2537	16·0	8330	1336	3881	1441	22·4	3·6	10·4	3·9
1877	2628	16·4	9038	1576	4460	1521	23·9	4·2	11·8	4·0
1878	2766	17·0	9662	2421	5128	1506	25·2	6·3	13·4	4·0
1879	2385	15·0	8650	1254	4095	1686	21·8	3·2	10·5	4·3
1880	2601	17·2	8088	1324	4043	1397	20·5	3·4	10·2	3·5
Average 1873 to 1880	2649	17·1	9011	1844	4426	1515	24·0	4·9	11·8	4·1
1881	2212	15·0	7938	1128	3741	1506	19·7	2·8	9·3	3·7

From the third column of the above Table, it appears that the Death-rate of Infants under one year of age is as low as it was in 1879, and lower than in any other of the last eight years. A study of this Table furnishes material for satisfaction in every column, each one indicating a better state of the health of the community than has ever been before attained.

Details of Mortality

Fuller details of the mortality are given in Tables A and B, pages 24 and 25.

SPECIFIED CAUSES OF DEATH.

Specified causes of death

During the past year the Deaths have been divided among the five primary classes of disease, as follows :—

Class I.—Zymotic Diseases ...	1,407, or 17·6	per cent. of total mortality.	
Class II.—Constitutional Diseases	1,192, or 15·0	„	„
Class III.—Local „	3,800, or 48·0	„	„
Class IV.—Developmental „	1,126, or 14·2	„	„
Class V.—Violence „	373, or 4·7	„	„
Causes not specified ...	40, or 0·5	„	„

Not specified causes

I.—*ZYMOTIC DISEASES.*

Zymotic diseases

This class has resulted in 1,407 deaths, equal to an annual rate of mortality of 3·5 per 1,000 persons living. The Deaths from

THE SEVEN PRINCIPAL ZYMOTICS,

Seven principal zymotics

Zymotic death-rate

which embrace Small-pox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever, and Diarrhœa, number 1,128, against 1,324 in 1880, and 1,844, the average of the eight years, 1873 to 1880. These 1,128 deaths are equivalent to an annual rate of 2·8 per 1,000 of the population, against the invariably higher rates of 5·6, 7·3, 5·9, 3·6, 4·2, 6·3, 3·2, and 3·4 in the eight years 1873, 4, 5, 6, 7, 8, 9, and 1880 respectively. Not only is the Death-rate less than in any of the years mentioned, but notwithstanding increase of population, greater density and other circumstances, the actual number of deaths from this group is less than in any of the same years, and less than half what it was in the epidemic years of 1874 and 1878. The diminution is principally due to the slightness of the Diarrhœa visitation in the summer ; there is also a still further decline of Fever, while in each of the other Zymotics there has been an increase, which, in most instances however, is comparatively small.

Zymotic death-rates of large towns

The following are the Zymotic Death-rates in the principal large English towns for the years 1873-81, both inclusive :—

	Average of 20 large Eng'h. Towns	Lond.	L'pool.	**Birm.**	Manch.	Leeds	Shefld.	Salfrd.	N'wcstle	N'wich
1881	3·4	3·6	4·5	**2·8**	2·3	2·9	2·7	2·9	2·6	1·7
1880	4·0	3·7	5·1	**3·4**	4·2	3·3	4·4	6·8	3·2	5·8
1879	3·2	3·3	6·0	**3·2**	3·4	3·3	3·5	4·0	3·9	2·2
1878	4·4	4·1	6·1	**6·3**	4·0	4·5	5·6	5·1	4·6	8·6
1877	3·5	3·5	4·7	**4·2**	4·2	2·8	3·3	4·8	2·5	2·9
1876	4·1	3·6	6·1	**3·6**	5·2	4·5	4·8	8·5	2·5	2·9
1875	4·4	3·9	4·5	**5·9**	4·6	4·6	4·8	7·2	3·6	4·3
1874	4·5	3·3	8·4	**7·3**	5·5	6·3	6·0	6·5	5·5	2·0
1873	3·9	3·3	4·0	**5·6**	5·9	5·6	4·9	6·0	6·8	2·2

Percentage of zymotic deaths on total deaths

The subjoined Table gives the percentage of Zymotic deaths on Total deaths in the same towns, and for the same period of time as the one above :—

	Average of 20 large Eng'h. Towns	Lond.	L'pool.	Birm.	Manch.	Leeds	Shefld.	Salfrd	N'wcstle	N'wich
1881...	15·5	...17·0	16·8	**14·2**	9·1	13·6	13·0	12·9	12·1	8·7
1880...	17·7	...16·8	18·6	**16·4**	16·4	15·7	21·0	26·2	14·4	23·7
1879...	13·8	...14·3	22·1	**14·5**	12·8	14·6	16·5	16·1	16·5	10·0
1878...	18·2	...17·6	21·9	**25·1**	14·3	19·0	23·6	19·9	12·2	14·5
1877...	15·4	...16·0	17·8	**17·4**	15·4	12·6	15·1	19·1	10·3	13·8
1876...	17·3	...16·1	22·1	**16·0**	17·8	17·8	19·6	26·6	11·0	13·2
1875 ..	17·5	...16·5	16·4	**22·2**	15·5	17·4	19·4	22·9	13·8	17·6
1874...	18·0	...14·9	25·2	**27·4**	19·7	22·0	22·3	22·0	18·0	9·0
1873...	16·3	...14·9	19·1	**23·8**	19·7	22·9	19·0	20·3	22·0	10·1

Reduction of death-rates

The points of interest the above Tables present are the great diminution of the special Death-rate, notwithstanding the concurrent reduction of the total Death-rate ; and the fact that the figure is lower than in any year since 1873, and than the average of the 20 large English towns.

WHOOPING COUGH

Whooping Cough

has proved the most fatal of the Zymotics, being credited with 362 deaths, as compared with 217 in 1880, and 304 the average of the 10 years, 1871–1879. The Registration Sub-Districts of Saint George and Duddeston have experienced the highest mortality from this disease, though it has been fairly equally distributed throughout the town. It is a disease which owes its great fatality to the circumstance that it is little feared, it is consequently so much neglected as to have become actually the most fatal of all the dangerous infantile diseases. No isolation is practised, medication is scarcely resorted to, exposure to climatic changes is not guarded against, and thus the anticipation in my last Report, that without "precaution it is sure to spread and continue to be a large contributor to the Zymotic death-roll" is unhappily realised.

DIARRHŒA

Diarrhœa

follows closely in order of fatality with 341 deaths. This number is considerably less than half that for 1880, which was 777, and also much under the average for the 10 years, 1871–80, both inclusive, viz., 638.

The disease has been somewhat more fatally prevalent in the Registration Sub-District of St. George than elsewhere.

The mortality from this disease in infants under one year of age was 72·6 per cent. of the whole mortality from the same disease, and that under five years of age 90·3 per cent. of the total, leaving only 9·7 per cent. of the deaths to be distributed among persons above five years of age.

In the third or Summer quarter of last year the Death-rate was 2·1, against 6·1 in the same period of 1880.

Diminished mortality of diarrhœa

The diminished mortality from Diarrhœa is general throughout the country, the rate for England and Wales during the Summer quarter being only 1·3 against 3·3 in the Summer quarter of last year, and that for the twenty large towns 2·3 against 4·4 in the third quarter of 1880, and 3·7 the average annual number in the Summer quarters of the ten years 1871—80.

Range of mortality

In the twenty large towns the rate ranged in the Summer quarter of last year from 0·6 and 0·9 in Plymouth and Bradford to 5·4 in Leicester.

In 50 other large towns the average rate was 1·3.

Temperature in Summer in the Borough

The temperature of the Summer quarter in Birmingham was below the average, and 1°·6 lower than that of the previous Summer quarter, when Diarrhœa was very prevalent. During the first half of July the weather was generally very hot, but during the remainder of the quarter there was a general deficiency of sunshine; during August, when Diarrhœa is generally most prevalent, there was an excessive rainfall, and for by far the greater portion of the period an abnormally low temperature.

Influence of temperature

We have in the comparatively small Diarrhœa mortality of the year 1881 another illustration of the influence of temperature on this disease; whatever the nature of that influence may be, whether direct or indirect, absolute or only contributory, it is impossible to ignore it. The fact is well established that in hot Summers the disease is unusually prevalent, and in cool ones its visitations are slight.

Local Government Board's investigation of the causes of Autumnal Diarrhœa

Autumnal Diarrhœa has naturally, owing to its regularity of occurrence and the fatality of its effects, for a long time occupied the attention of the medical profession and the sanitary authorities; and although its regular appearance every summer clearly proves that it depends very largely on solar heat, yet it is equally clear that there are other contributory, predisposing, if not exciting, causes. This appears from the fact that some towns invariably suffer more than others, although the conditions of temperature are just the same. With a view to discover what these other causes are the Local Government Board entrusted to Dr. Ballard the duty of investigating the subject, and that gentleman sought the co-operation of certain Medical Officers of Health in the work. Birmingham is one of the towns selected and the work of observation and investigation was begun here in the summer. It is of two kinds, special and general. The special consists of enquiries into the conditions surrounding every fatal case of the disease, and a register of the information obtained; the general work is confined to meteorological observations, and for this purpose sets of the necessary instruments have been fixed with the consent of your Committee in different places in the town. The stations selected are The Hollies, Winson Green, Mr. David Smith's garden at Bloomsbury, Mr. Smith having kindly consented to add the necessary observations to those which he has so long been in the habit of making, the Police Station in Moseley Street, and the Police Station in Kenion Street. These positions fairly well represent different varieties of locality and the observations are made there daily. The instruments in use for this special inquiry are Robinson's Anemometer, wet bulb and dry bulb thermometers, maximum and minimum thermometers in the shade, and two dry bulb thermometers in the ground placed respectively at the depth of one foot and four feet; beside these there are at the Hollies, and at Bloomsbury, Barometers and Rain Gauges, and at the Hollies a Solar Radiation Thermometer with blackened bulb in vacuo. It is hoped that a daily record of these various meteorological observations and the inquiry into the attending circumstances of each fatal case of Diarrhœa may lead to a knowledge of the hitherto unknown conditions which determine its occurrence and serious consequences.

Meteorological Stations

Instruments

SCARLET FEVER,

which last year occasioned only 123 deaths, the lowest number in any year on record, has this year been fatal in 164 instances. The Registration Sub-Districts of Saint George and Deritend appear to have suffered more than other parts of the Borough from this most infectious malady.

Scarlet Fever

It is a peculiarity of this Zymotic to rise and fall about every four years, thus a maximum of its development was attained in the year 1874 and again in 1878, so that 1882, the year in which I am writing, may be naturally expected to be another of these periods of culmination. This expectation is not very powerfully supported by the increase of the disease up to the end of 1881, seeing that only forty-one more deaths have occurred in that year than in the preceding one. It is not, however, to be concluded that there is a proportionately progressive annual rise in numbers between the trough and the crest of the disease wave, though this is sometimes so, for in 1877 the number of deaths from Scarlatina was only 237, while in 1878 they rose to the very large number of 995. We are not justified then in a feeling of complacency on the ground that because the deaths are at present only 164 in the year 1881, it is not likely that any great development of the complaint may occur in the present year 1882, particularly when it is remembered that the months of the year for culmination, as experience both in our own and other towns proves, are October and November. There thus remains a considerable period during which the disease might become

Periodicity of Scarlet Fever epidemics

Scarlet Fever *continued*

extensively epidemic, and it will be necessary to exert the utmost vigilance in order to check its spread; but bearing in mind the periodicity of the epidemics, the great infectiousness of the disease, the unchecked communication between the infected and the healthy, the difficulty of obtaining information of the cases early, if at all, owing to the ignorance, apathy, and wilful obstruction of those who should furnish it, the struggle is a very unequal one, and must continue so until means are instituted for universal and early notification of cases to the Sanitary Authority, upon which subject I have made some remarks in another place.

MEASLES

Measles

stands next in the order of destructiveness to life, the deaths from this cause numbering 132, as compared with only 63 in 1880. The Registration Sub-Districts of Ladywood, All Saints, and Deritend have shared between them by far the greater portion of the mortality from this Zymotic. The high mortality in Deritend Sub-District has been almost entirely confined to that portion of it situated in Saint Bartholomew's Ward. This disease like Whooping Cough is held in light esteem, and therefore no care is taken to prevent its spread.

FEVER.

Fever

This term embraces the three forms of *Typhoid*, *Typhus*, and *Simple Continued*, from which only 66 deaths have been registered against 84 last year.

The Fever Death-rates of Birmingham and of the twenty large English towns since 1870 are subjoined:—

	Per 1,000 per annum	
	Birmingham.	20 large Towns.
1870	·63	·90
1871	·53	·78
1872	·54	·60
1873	·57	·59
1874	·56	·58
1875	·56	·52
1876	·40	·45
1877	·38	·42
1878	·38	·42
1879	·22	·29
1880	·21	·30
1881	·16	·31

Gradual decline of Fever

It is thus seen that the Fever rate in Birmingham continues steadily to decline, while that for the twenty towns has during the last two years slightly risen.

Of the 66 deaths embraced by this group, 51 were reported as Typhoid, 13 as Simple Continued, and two as Typhus.

As a result of my enquiries and investigations I have good reason for believing that a large number of the cases reported as Typhoid were nothing more than low forms of Simple Continued Fever, and that the two cases of alleged Typhus were something quite different.

Fevers incorrectly designated

But under the most unfavourable view of the case our position with regard to Typhoid is highly satisfactory, its mortality having diminished three-fourths since 1870, while that for the twenty large towns has diminished by two-thirds. The result is so gratifying, owing to the consideration that the diminution of Fever is regarded unanimously by competent authorities as being a direct measure of the practical efficiency of sanitary work.

Diminution of Typhoid, a demonstration of sanitary progress

DIPHTHERIA.

From this cause 57 deaths have been certified during the year against 51 in 1880, 71 in 1879, and 71 the average of the ten years 1871—1880.

Diphtheria

The Diphtheria Death-rates since 1873 are given below:—

1873	1874	1875	1876	1877	1878	1879	1880	1881
·31	·21	·16	·16	·14	·22	·18	·13	·14

It thus appears that there is with interruptions a progressive diminution of the disease from 1873 to the present time; and it is worthy of remark that the highest number of reported cases occurs at and near the periods of greatest prevalence of Scarlet Fever, from which I am led to the conclusion that in many instances the two diseases are confounded. Thus there is, with the present increase of Scarlet Fever, a reported increase of the Diphtheria Death-rate from 0·13 to 0·14 per 1,000, a very slight rise it is true, and not affecting the general fact that there is over a period of years a very large decrease.

Decline of Diphtheria

What has been said of Typhoid Fever as a criterion of the success of sanitary measures, may be said also of Diphtheria, and that being so, this diminution of mortality from it must be regarded as highly satisfactory.

An indication of sanitary improvement

SMALL-POX.

Sixteen cases have occurred and six deaths have been registered in the Borough from this disease during the year; last year there were eighteen cases and two deaths reported.

Small-pox

The increase of the mortality from Small-Pox is only fractional, three cases belonging to the Borough having terminated fatally against two cases in the previous year. Six deaths actually occurred in the Borough, but three of them I exclude from account in the following Table as the patients were received from King's Norton to oblige the Rural Sanitary Authority of that District, which has no Hospital of its own; these deaths unfortunately appear on the death-register, but they cannot be properly debited to the Borough, as they would

Small-Pox *continued*

represent its sanitary condition as lower than it is, though their inclusion in the general Death-rate, which is inevitable, will make no appreciable difference to it.

One of the three fatal cases belonging to the Borough was the daughter of two of the patients received into the Hospital from King's Norton, where she had been attending upon her parents previous to their removal, and whence she had brought the disease which caused her death.

Circular Letter

In anticipation of a possible visitation of Small-Pox I issued the following circular letter to the members of the medical profession :—

BOROUGH OF BIRMINGHAM.

Medical Officer of Health's Department,
The Council House,
May 12th, 1881.

SMALL-POX.

Dear Sir,

It is now six years since the termination of the last epidemic of Small-pox in Birmingham, which lasted about four years, and caused the sacrifice of upwards of 1,200 lives.

I am of opinion that with the amount of protection afforded by public and private vaccination in the town, another epidemic is not properly due to us ; nevertheless, seeing that the disease has existed for a long time in the metropolis, that it continues to increase there, and that there is constant and rapid communication between London on the one hand and Birmingham and its neighbourhood on the other, it is not at all improbable that it may be largely introduced into the Borough, and first seizing on the minority of unvaccinated persons which exists, not only here, but unfortunately in every community. may then extend to others who have been imperfectly vaccinated, or in whom the protective influence of the primary vaccination has by lapse of time so largely diminished as to expose to danger.

A few cases of Small-pox have already occurred in the Borough, and still more in the outlying districts, but owing to the promptitude and care with which they have been attended to, and in most instances isolated, the disease is at present kept in check.

The danger of a possible epidemic outbreak cannot however be ignored, and I beg therefore, on behalf of the Health Committee and myself, to ask your valuable assistance in the endeavour to give as complete protection as possible to the inhabitants of the town. I need not say that an epidemic of Small-pox is in these days an opprobrium, and a reflection upon either the intelligence or management of the population among which it occurs, and I venture to ask that you will be good enough to take the trouble to use your influence to secure Vaccination and Re-vaccination in all cases where it is necessary, pointing out to objectors the groundlessness of their objections, the infinitesimally slight risk attending the primary operation, the desirability of re-vaccination after fourteen years of age, the fearful nature of Small-pox, and the enormous benefits conferred by the employment of the great prophylactic, nothing less, in short, than the escape from the loss and suffering of an illness from the most dangerous and repulsive of diseases, and the preservation of good looks, sight, health and life.

I remain, dear Sir,
Yours faithfully,
ALFRED HILL, M.D.,
Medical Officer of Health.

DEATHS AND DEATH-RATE FROM SMALL-POX PER 100,000 OF THE POPULATION IN 20 LARGE ENGLISH TOWNS.

Small-Pox *continued*

Twenty large towns compared

Town.	Population.	Deaths from Small-pox in the year 1881.	Rate per 100,000. 1881.	1880.	1879.	1878.
London	3,829,751	2,371	61·9	13·0	12·7	39·6
Brighton	107,934	9	8·3	0·0	0·0	0·0
Portsmouth	128,335	0	0·0	0·0	0·0	0·0
Norwich	88,038	1	1·1	0·0	0·0	2·4
Plymouth	75,262	2	2·6	0·0	0·0	0·0
Bristol	207,140	0	0·0	0·9	0·0	0·0
Wolverhampton ...	75,934	0	0·0	0·0	0·0	0·0
Birmingham ...	**402,296**	**3**	**0·7**	**0·5**	**0·0**	**1·3**
Leicester	123,120	0	0·0	0·0	0·0	0·0
Nottingham	188,035	4	1·1	0·0	0·6	0·0
Liverpool	553,988	34	6·1	0·4	0·0	0·6
Manchester	341,296	3	0·9	0·5	0·0	0·3
Salford	177,760	7	4·0	0·0	0·0	0·6
Oldham	112,176	9	8·0	0·0	0·0	0·9
Bradford	184,037	2	1·1	0·5	0·0	0·6
Leeds	310,490	2	0·6	0·0	0·0	0·0
Sheffield	285,621	0	0·0	0·3	0·0	0·3
Hull	155,161	4	2·6	0·0	0·0	0·5
Sunderland	116,753	0	0·0	0·0	0·0	0·9
Newcastle-on-Tyne ...	145,675	9	6·2	0·0	0·0	0·7
In 20 Towns... ...	7,608,775	2,463	32·4	6·5	6·1	20·2

The following statement gives the number of cases and deaths resulting from this disease in the Borough since 1871 :

Cases and Deaths in the Borough since 1871

DATE.	Cases.		Deaths.	
1871.				
November 11th to end of year ...	359		43	
Total ...		359		43
1872.				
1st Quarter...	798		96	
2nd ,, ...	632		92	
3rd ,, ...	355		67	
4th ,, ...	192		44	
Total ...		1,977		299
1873.				
1st Quarter...	171		29	
2nd ,, ...	246		37	
3rd ,, ...	124		18	
4th ,, ...	253		38	
Total ...		794		122
1874.				
1st Quarter...	757		123	
2nd ,, ...	1,303		196	
3rd ,, ...	1,059		165	
4th ,, ...	672		153	
Total ...		3,791		637

Small-Pox Cases and Deaths in the Borough since 1871, *continued*

1875.				
1st Quarter...	366		85	
2nd ,, ...	347		72	
3rd ,, ...	95		14	
4th ,, ...	16		2	
Total ...	——	824	——	173
1876.				
1st Quarter...	2		0	
2nd ,, ...	2		0	
3rd ,, ...	2		0	
4th ,, ...	5		0	
Total ...	——	11	——	0
1877.				
1st Quarter...	7		1	
2nd ,, ...	20		3	
3rd ,, ...	20		3	
4th ,, ...	3		1	
Total ...	——	50	——	8
1878.				
1st Quarter...	3		0	
2nd ,, ...	4		0	
3rd ,, ...	10		2	
4th ,, ...	10		3	
Total ...	——	27	——	5
1879.				
1st Quarter...	1		0	
2nd ,, ...	0		0	
3rd ,, ...	3		0	
4th ,, ..	0		0	
Total ...	——	4	——	0
1880.				
1st Quarter ..	2		0	
2nd ,, ...	5		1	
3rd ,, ...	8		1	
4th ,, ...	3		0	
Total ...	——	18	——	2
1881.				
1st Quarter...	5		5	
2nd ,, ...	9		1	
3rd ,, ...	2		0	
4th ,, ...	—		—	
Total ...	——	16	——	6
Grand Total ...		7,871		1,295

DISEASE MAP.

Disease Map

This Map, which is appended to the Report, indicates the locality where each death from the three Zymotic diseases, Scarlet Fever, Measles and Typhoid Fever, occurred.

On looking at the Map it is at once seen that, as in previous years, the deaths from these diseases have been fairly equally scattered throughout the Borough, with the usual exceptions that the centre of the town, where there are no or few subjects for attack, and Edgbaston, where the children do not associate and congregate together in large numbers in Board Schools and the like, have an almost total immunity from these diseases.

Disease Map *continued*

II. CONSTITUTIONAL DISEASES.

Constitutional Diseases

This class of disease is credited with 1,192 deaths, equivalent to an annual death-rate of 2·9 per 1,000 persons living. The mortality from Cancer has rather materially increased, but that from the other diseases in this class shows no marked change. It is pleasing to record the fact, for the third year in succession, that not only the death-rate, but also the actual number of deaths from that most terrible and destructive malady, Consumption, continues to diminish.

III. LOCAL DISEASES.

Local Diseases

The deaths in this class amount to 3,800, equal to a rate of mortality of 9·4 per 1,000 of the population. Last year the rate of mortality from these diseases was 9·5. Heart disease has proved more fatal this year than last, but the fatality of the diseases of the Respiratory Organs has, on the whole, changed very little, for while the deaths from Bronchitis have been more numerous than in 1880, on the other hand those from Pneumonia have been fewer.

The variation between the number of deaths from most of the other diseases or orders of diseases in this class, for the year 1880 and 1881, is remarkably small.

IV. DEVELOPMENTAL DISEASES.

Developmental Diseases

To this class 1,126 deaths were referred, the equivalent death-rate being 2·8 against 3·0 in 1880. The deaths from Atrophy have further increased on those for 1880, while those from old age again show a marked falling off. The number of deaths from Child-birth was last year 41, as compared with 36 in the preceding year, or an increase on that year of five; if, however, the deaths from Puerperal Fever be also taken into account, the combined sacrifice of life from these two diseases is 49, giving a death-rate of 3·3 per 1,000 births registered, against 52 in 1880, equal to a rate of 3·4.

V. VIOLENT DEATHS.

Violent Deaths

The deaths of 373 persons were registered from different forms of violence, the mortality being equal to a rate of 0·9 per 1,000 of the population, a rate exactly equal to that of the year previous.

Further particulars respecting the causes of Death and the distribution of mortality are given in the following Tables.

TABLE A.

Deaths from Several Causes at all Ages and at Six Groups of Ages During the Year, 1881.

1881.	Deaths at the following ages.						Deaths at all ages.						
	Under 5 years.		5—20	20—40	40—60	60 and up.	1881	Corrected averages 5 years	1880	1879	1878	1877	1876
	0–1	1–5											
All Causes	2212	1429	494	978	1319	1506	7938	9142	8088	8650	9662	9038	8330
Class I.—Zymotic Diseases.													
Small-pox	...	1	...	2	2	1	6	3	2	...	5	8	...
Measles	32	91	9	...	...	...	132	143	63	169	54	309	87
Scarlet Fever	9	113	41	1	...	...	164	390	123	309	995	237	204
Diphtheria	1	28	21	3	4	...	57	66	51	71	83	52	58
Whooping Cough	146	201	15	...	...	...	362	337	217	384	455	369	189
Fever Typhus...	...	2	...	...	...	...	2	3	1	4	2	1	5
Enteric	1	3	16	20	9	2	51	104	67	64	119	119	127
Simple Continued	2	3	1	3	2	2	13	20	16	19	26	24	15
Diarrhœa	246	60	3	7	6	17	339	584	777	234	680	455	651
Cholera and Choleraic Diarrhœa ...	...	...	...	2	...	...	2	2	7	...	2	2	...
Croup (true)	10	56	8	...	...	...	74	86	80	95	81	84	73
Puerperal Fever	...	...	1	5	2	...	8	11	16	11	12	7	9
Rheumatism	...	1	15	8	7	5	36	35	4	31	38	45	48
Syphilis	39	7	...	1	...	1	48	68	60	69	83	60	58
Delirium Tremens and Intemp. ...	...	...	...	4	8	...	12	19	20	9	15	23	23
Other Zymotic Diseases	40	12	5	8	21	15	101	93	107	63	83	81	115
Class II.—Constitutional Dis.													
Dropsy	4	6	1	7	13	19	50	66	48	65	72	69	65
Cancer	...	3	5	16	115	65	204	178	174	190	158	174	159
Other Diathetic Diseases ...	...	1	3	3	7	12	26	27	20	31	28	23	28
Tabes Mesenterica	102	28	2	...	1	...	133	135	136	120	142	132	115
Phthisis	17	18	73	336	205	50	699	818	717	771	839	812	776
Hydrocephalus...	25	18	7	2	1	1	54	57	51	51	47	57	67
Other Tubercular Diseases	8	6	6	2	2	2	26	16	19	14	16	19	11
Class III.—Local Diseases.													
Apoplexy	...	...	2	16	68	89	175	184	191	189	173	163	166
Paralysis...	...	...	2	11	42	66	121	131	120	140	104	136	126
Epilepsy	1	...	9	25	18	2	55	59	62	57	47	59	59
Convulsions	119	65	6	2	1	1	224	308	214	284	393	310	272
Other Brain Diseases	75	115	42	34	49	45	360	419	347	374	440	419	416
Heart Disease	6	4	41	93	158	157	459	461	395	489	420	525	385
Bronchitis	246	237	15	66	255	420	1239	1326	1153	1435	1175	1289	1292
Pneumonia	90	109	20	59	62	35	375	372	445	371	372	307	302
Other Lung Diseases	74	32	14	16	21	21	178	222	193	206	208	242	213
Digestive Organs—Disease of ...	63	20	24	77	102	67	353	355	358	319	334	338	347
Urinary Organs—Disease of ...	1	6	14	30	55	35	141	171	148	168	188	180	138
Generative Organs—Disease of .	...	...	...	5	9	2	16	26	16	27	23	26	34
Joint Disease	7	18	9	3	2	5	41	41	45	40	35	42	34
Skin Disease	16	6	5	14	8	11	60	65	60	57	73	58	63
Class IV.—Developmental Dis.													
Premature Birth	170	...	...	...	...	...	170	201	185	202	222	163	188
Teething	31	29	...	...	...	...	60	71	52	75	87	65	63
Malformations	19	...	1	...	...	..	20	26	22	24	28	37	17
Childbirth	...	...	...	37	4	...	41	47	36	54	39	52	43
Old Age	...	...	...	...	1	313	314	311	252	333	353	366	325
Atrophy	435	63	5	3	3	12	521	643	656	583	599	659	583
Class V.—Violent Deaths.													
Accident	123	62	45	33	32	27	322	344	292	359	345	347	325
Homicide	7	1	2	3	3	...	16	11	9	15	7	11	9
Suicide	...	...	3	15	14	3	35	35	34	34	35	40	25
Causes not Specified, or ill-defined	17	4	3	6	7	3	40	28	30	35	20	30	21

TABLE B.

DEATHS FROM SEVERAL CAUSES REGISTERED IN THE VARIOUS STATISTICAL SUB-DIVISIONS AND IN PUBLIC INSTITUTIONS.

1881.		REGISTRATION SUB-DISTRICTS.								PUBLIC INSTITUTIONS.						
	Borough	Ladywood	St. Thomas's	St. Martin's	St. George's	All Saints'	Deritend	Duddeston	Edgbaston	General Hospital	Queen's Hospital	Children's Hospital	Borough Hospital	Workhouse	Lunatic Asylum	Other Institutions
ALL CAUSES	7938	907	783	761	1525	1436	1312	988	226	239	119	83	34	545	77	16
Class I.—Zymotic Diseases.																
Small-pox	6	..	...	...	1	5	...	...	...	...	...	...	5	...	...	...
Measles	132	21	3	14	21	31	30	12	...	3	...	11	1	...	...	...
Scarlet Fever	164	16	5	11	37	44	35	15	1	8	...	9	28	...	...	...
Diphtheria	57	22	1	2	9	13	5	5	...	...	...	10	...	...	...	...
Whooping Cough	362	46	41	39	75	34	67	58	2	...	...	6	...	5	...	...
Fever Typhus	2	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...
Enteric	51	3	9	4	12	12	2	9	...	3	4	...	...	1	...	1
Simple continued	13	1	3	1	3	...	3	1	1	...	...	...	...	...	...	...
Diarrhœa	339	42	29	38	64	37	73	53	3	1	...	...	...	11	...	2
Cholera and Choleraic Diarrhœa	2	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Croup (true)	74	6	6	8	16	8	9	20	1	...	...	...	...	...	...	...
Puerperal Fever	8	1	...	1	...	3	2	1	...	...	...	...	...	...	...	...
Rheumatism	36	5	4	4	5	5	6	6	1	1	1	3	...	...	1	...
Syphilis	48	5	1	6	7	11	10	8	...	2	...	1	...	2	...	...
Delirium Tremens and Intemp.	12	1	1	3	3	...	2	2	...	...	...	...	...	...	...	...
Other Zymotic Diseases	101	14	8	4	14	26	14	18	3	2	1	1	...	21	...	...
Class II.—Constitutional Dis.																
Dropsy	50	3	4	5	5	21	8	3	1	...	...	...	...	15	...	2
Cancer	204	21	23	18	36	52	28	13	13	16	7	2	...	33	1	...
Other Diathetic Diseases	26	3	4	2	5	3	2	2	5	2	1	1	...	2	...	...
Tabes Mesenterica	133	10	3	25	36	26	7	24	2	...	...	...	...	1	...	...
Phthisis	699	88	83	65	106	166	99	70	22	11	5	4	...	96	2	1
Hydrocephalus	54	7	5	4	12	1	10	11	4	...	...	...	...	...	...	...
Other Tubercular Diseases	26	1	1	2	10	9	...	2	1	...	...	...	...	1	...	...
Class III.—Local Diseases.																
Apoplexy	175	13	15	13	28	46	33	19	8	2	1	...	...	29	1	...
Paralysis	121	11	8	5	16	53	11	11	6	...	1	...	...	18	27	...
Epilepsy	55	6	3	5	5	25	4	6	1	...	...	...	...	12	12	...
Convulsions	224	22	12	35	67	26	36	23	3	...	...	1	...	5	...	...
Other Brain Diseases	360	57	32	33	54	58	68	49	9	9	6	5	...	13	15	...
Heart Disease	459	57	55	48	82	55	66	77	19	24	18	2	...	19	4	1
Bronchitis	1239	136	103	121	248	253	202	143	33	7	7	4	...	147	...	...
Pneumonia	375	39	40	44	70	61	73	39	9	13	6	4	...	19	6	...
Other Lung Diseases	178	22	23	17	21	27	35	27	6	2	4	3	...	4	...	...
Digestive Organs—Disease of	353	40	46	29	72	32	75	43	16	24	16	4	...	5	1	1
Urinary Organs—Disease of	141	15	16	11	25	19	18	21	16	14	8	2	...	6	...	3
Generative Organs—Disease of	16	1	2	1	5	2	3	2	...	1	...	...	...	...	...	...
Joint Disease	44	10	4	...	10	7	6	5	2	4	1	5	...	4	...	1
Skin Disease	60	9	5	2	12	4	21	3	4	3	1	2	...	3	...	1
Class IV.—Developmental Dis.																
Premature Birth	170	24	15	13	23	16	50	22	7		...	...	...	...	...	...
Teething	60	8	7	4	8	8	13	11	1		...	...	...	...	...	...
Malformations	20	4	2	3	2	2	2	4	1	...	...	...	...	...	...	...
Childbirth	41	4	4	3	8	5	9	7	1	...	1	...	...	1	...	...
Old Age	314	27	29	25	54	90	42	39	8	...	...	...	...	57	4	...
Atrophy	521	56	70	56	112	59	94	68	6	2	1	2	...	6	...	...
Class V.—Violent Deaths.																
Accident	322	19	52	34	113	35	37	28	4	76	27	1	...	6	1	1
Homicide	16	3	...	1	5	3	1	3	...	3	...	...	...	1	...	...
Suicide	35	6	5	2	5	8	1	2	6	4	1	...	...	...	1	2
Causes not Specified, or ill-defined	40	1	1	...	3	35	...	...	...	...	1	...	...	2	1	1

METEOROLOGY.

Meteorology The year 1881 has been remarkable for having both the highest and lowest temperature on record. Although the mean temperature was below the average of the last 20 years, yet the rainfall was less. This is a reversal of the natural order of things, as cold years are almost invariably wet ones. Temperature The average temperature for the year was 47°·2, or 1·°0 below the mean, being 0°·8 below 1880 and 0°·6 above 1879, the latter being one of the coldest, if not the coldest year this century. January January was a very cold month. Frost set in on the 7th, and lasted till the 28th, and during this period we experienced the greatest cold on record. So severe was the frost that, although during the month there were 10 warm days, the mean temperature for the month, as will be seen by the annexed table, was 8°·1 below the average. A severe snow-storm visited the country on the 18th of the month, putting a stop to traffic both by road and rail; but Birmingham luckily escaped the greatest severity of the storm, its full force being expended over the more southern counties. The weather in February February was also very severe, its mean temperature being considerably below the average. March March commenced with very cold weather, but the temperature rose considerably during the second and third weeks, so that, although the last week was cold, the temperature for the month was about the average. April April was again below the average, and during this month there were many night frosts, which, checking the growth of vegetation, caused a late Spring, making three late Springs in succession. May With the advent of May, however, the temperature rose considerably, and continued high during the greater part of the month, there being seven days on which the temperature rose to a point above 70°·0 in the shade. This was the first month of the year which exhibited a temperature much above the average. June June was below the average; the first and third weeks were warm, but the second week was very cold, being 8°·1 below the average. July July was, on the whole, a fine and warm month. In the second week the weather was extremely hot, some of the readings taken being unprecedentedly high. In Birmingham the thermometer attained the very high figure of 88°·0 in the shade. August August was cold and cheerless, being as much as 3°·1 below the average for the month. The duration of sunshine during this month was very short. September September also was below the average, but only to the extent of 1°·0, although some very cold nights were experienced. October October was as much as 3°·0 below the average, it being the coldest on record. A very severe gale visited us on the 14th, doing great and wide-spread damage to property, and causing numerous fatalities. November November was extremely mild and warm, being as much as 7°·0 above the average. Instead of being 8°·0 colder than October, it was 2°·1 warmer. This is the first year on record in which the temperature of November has been above that of October. This high temperature, December however, did not last long, as December was 10°·0 colder than

November, and exactly identical with the monthly average. During the last three months of the year we were visited by a large number of gales, but none of them was so severe as that of October 14.

Meteorology *continued*

The rainfall during the past year amounted to 28·95 inches, which is 2·98 inches below the average, so that 1881 was the driest year since 1874. January, March, April, May, June, July, September and October, all had a rainfall below the average; thus February, August, November and December were the only wet months during the year.

Rainfall

The year was singularly free from electric disturbances, there not being a single thunder-storm of any consequence in Birmingham. A brilliant Aurora Borealis was observed on the 31st of January.

Aurora

Snow fell frequently in January, February, and March, and twice in April, but none fell in October; there was only a slight fall in November, viz: on the first day of the month, and none in December.

Snow

MONTHS.	TEMPERATURE.			RAINFALL.		
	Mean Temperature.	Average for 20 years 1861–1880 inclusive.	Above or below the average.	Rainfall for Month.	Average for 10 years 1867–1876 inclusive.	Above or below the average.
January	28·5	36·6	— 8·1	0·96	2·92	— 1·96
February	36·3	39·1	— 2·8	3·43	2·26	+ 1·17
March	41·1	40·6	+ 0·5	2·37	2·47	— 0·10
April	44·3	47·2	— 2·9	0·78	2·01	— 1·23
May	53·9	51·9	+ 2·0	1·48	2·27	— 0·79
June	57·9	58·4	— 0·5	1·74	2·28	— 0·54
July	62·5	61·6	+ 0·9	1·66	2·88	— 1·22
August	57·4	60·5	— 3·1	5·18	2·54	+ 2·64
September	54·4	55·4	— 1·0	1·65	3·67	— 2·02
October	45·2	48·2	— 3·0	3·17	3·33	— 0·16
November	47·3	40·3	+ 7·0	3·13	2·09	+ 1·04
December	37·9	37·9	...	3·40	3·21	+ 0·19
Year	47·2	48·2	— 1·0	28·95	31·93	– 2·98

Climatic conditions exert, as is well known, a very marked influence on health and life, but far greater than is supposed by persons unaccustomed to consider these questions.

Influence of Climatic conditions

Climatic conditions *continued* Effects of Temperature

The effects of heat and cold are pretty well recognised, for they are forced upon the notice of the most heedless, by the occurrence of epidemic Diarrhœa in the Summer months, and of Bronchitis and other diseases in the Winter. There is, however, a meteorological condition which but for the inconvenience it occasions would attract little attention, and yet it is one which is fraught with the greatest danger to health, I allude to Fog. Experience proves it to be only second to Cold in regard to the evil effects it produces. We have had this year (1882), at the end of January and beginning of February, a most convincing illustration of this fact in the fogs and fatality of the metropolis.

Fog

Influence of Fog on Mortality

During the first three weeks of the year the Death-rate of the metropolis, as well as of the twenty-seven provincial towns, was a little under 24 per 1,000 per annum. In the following fortnight ending February 4th, the Death-rate rose in London to 27·1, while in the provincial towns it slightly fell. The higher mortality cannot be attributed to the fall of temperature which occurred, because the provinces experienced the same change; but as London had been overhung for a fortnight, almost without intermission, with a dense fog, while the provincial towns had not been so circumstanced, the increase of mortality can only be attributed to the fogs. The greatest increase occurred in children between one and five years of age, and in adults over sixty years of age, and it is very noticeable that in both classes, although the fatal diseases were very different in some respects, they were alike in this, that they were affections of the respiratory organs, viz: Whooping Cough in the children, and Bronchitis and other Chest affections among the old people. In the week ending February 11th, the Death-rate of London further increased to 35·3 per 1,000, while in Birmingham it was only 21. "The excessive mortality," says the Registrar General, "was consequent upon, and doubtless determined by, a succession of dense fogs."

In the following Table there is no record, during the third quarter, of the Horizontal Movement of the Air in miles; the cause of this omission is that the Anemometer at the Midland Institute had been removed, and my own Anemometer was not set up until the end of the quarter in question.

Chart showing the relations between Mortality and Meteorology

The table is very useful as showing the relation between mortality at different ages, and for certain diseases, and meteorological conditions; but as graphic representation is more convenient and striking, I have this year introduced a chart showing at a glance, Rainfall, Direction of Prevailing Winds, Height of Barometer, Maximum and Minimum of Temperature, and number of Deaths from all causes for every day of the year. I am indebted to Dr. Janssens, Inspecteur en chef du service de santé, of Brussels, for the plan of this chart. Dr. Janssens with equal courtesy and kindness displayed the greatest readiness in assenting to my request to be allowed to make use of the plan of his chart, which besides its intrinsic value possesses a neatness of arrangement and execution which highly commend it.

METEOROLOGY, BIRTHS, DEATHS, AND MORTALITY FROM CERTAIN PREVALENT DISEASES FOR EACH WEEK OF 1881.

Week.		Temperature of the Air.			Air Pressure.	Horizontal Movement of Air in Miles.	Mean Humidity, complete Saturation=100.	Rainfall in inches.	Births.	Deaths at the Ages.				Deaths from								
Number.	Date of Ending.	Highest during week.	Lowest during week.	Mean Temperature.	Extreme Range of Barometric Changes.					All Ages.	Under 1 year.	1 to 5 years.	Over 60.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria.	Wh'ping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases.
	1881.																					
1	Jan. 8	46°0	26°5	37°9	·346	1053	94	0·00	332	139	39	20	30	2	...	2	1	6	1	3	13	38
2	,, 15	33·5	14·0	25·3	·881	692	100	0·05	275	169	42	26	40	...	3	3	...	6	...	3	14	48
3	,, 22	30·0	10·0	21·1	·878	1352	100	0·70	306	197	55	23	52	...	...	3	...	8	...	2	17	81
4	,, 29	42·0	6·0	25·5	1·377	496	100	0·10	229	246	53	33	75	1	1	2	...	9	1	1	21	93
5	Feb. 5	50·0	31·0	40·9	·681	1038	98	0·71	294	192	44	27	51	...	...	1	2	5	1	2	15	64
6	,, 12	50·0	27·0	36·9	1·107	1549	98	1·01	327	165	44	24	47	...	2	...	1	5	...	3	11	49
7	,, 19	46·0	28·0	38·2	·521	961	96	0·42	320	138	28	23	27	...	...	...	...	6	...	4	14	31
8	,, 26	38·0	23·0	31·5	·532	1063	98	0·68	292	143	38	17	30	...	...	1	2	2	1	3	10	32
9	Mar. 5	41·0	23·0	33·2	·878	1426	94	1·70	310	161	40	30	30	1	...	5	...	7	2	4	19	30
10	,, 12	58 0	37·0	49·2	·835	1698	84	1·12	340	162	46	26	33	...	1	1	...	8	1	2	11	38
11	,, 19	58·5	31·0	44·6	·671	1074	88	0·05	318	133	36	18	25	...	1	...	...	5	1	2	23	26
12	,, 26	56·5	27 0	38·4	·544	1446	86	0·22	271	134	31	25	27	1	...	1	1	1	1	...	11	29
13	April 2	50·0	24·0	36·8	·288	1372	87	0·00	351	154	33	31	30	...	...	4	2	2	2	4	12	41
14	,, 9	54°0	25·0	38·5	·244	2158	69	0·00	299	187	51	30	42	...	2	3	...	3	3	4	21	41
15	,, 16	60·0	30·5	48·9	·245	1148	92	0·64	248	156	35	25	38	...	...	4	2	2	1	2	10	47
16	,, 23	59·0	28·0	41·4	·292	1279	77	0·01	294	151	41	28	22	...	...	7	1	4	1	3	18	32
17	,, 30	60·5	38·0	49·6	·443	1159	78	0·13	315	131	37	19	30	1	...	3	...	5	...	3	13	36
18	May 7	63·0	38·0	50·2	·972	1350	78	0·46	290	125	27	24	28	...	3	2	1	2	1	2	14	27
19	,, 14	73·5	34·0	52·8	·710	1048	65	0·00	298	136	39	21	25	...	1	2	1	7	2	4	11	26
20	,, 21	61·0	38 5	51·6	·826	1867	80	0·58	284	152	39	25	24	...	...	4	3	10	...	4	6	27
21	,, 28	74·0	42·0	59·0	·604	1322	74	0·16	323	121	38	24	22	...	1	3	...	9	...	2	12	25
22	June 4	76·5	41·0	62·3	·403	714	71	0·23	291	133	32	28	22	...	2	2	...	12	1	4	14	27
23	,, 11	76·0	37·0	50·3	·728	1135	78	0·78	261	144	30	40	23	...	3	8	...	13	...	...	14	30
24	,, 18	70·5	44·5	59·0	·284	830	79	0·33	292	133	37	26	26	...	2	1	1	3	...	5	12	37
25	,, 25	71·0	47·0	60·0	·773	1554	76	0·52	291	139	34	23	24	...	4	3	...	13	2	3	12	29
26	July 2	71 0	49·0	59·1	·293	1180	74	0·11	268	128	25	20	27	...	3	1	...	10	...	4	12	27
27	,, 9	88·0	48 0	63·4	·482		73	0·65	277	162	39	37	30	...	4	5	...	15	1	6	17	37
28	,, 16	84·0	52·0	67·7	·258		75	0·10	266	154	50	21	23	...	3	5	1	5	1	10	13	25
29	,, 23	82·0	47·0	63·0	·272		72	0·17	267	142	41	28	19	...	1	3	4	13	2	13	15	17
30	,, 30	68·0	48·0	58·9	·580		77	0·62	293	182	70	26	33	...	1	4	...	10	...	29	9	22
31	Aug. 6	81·0	47·0	61·9	·873		77	0·14	283	146	52	35	19	...	5	5	1	5	1	28	12	22
32	,, 13	81·0	48·0	57·8	·503		65	1·67	289	162	74	25	20	...	7	2	...	13	1	30	13	15
33	,, 20	68·5	47·0	55·9	·419		80	0·72	269	154	65	22	21	...	2	2	...	9	6	30	10	15
34	,, 27	65·5	47·0	56·1	·514		79	2·43	274	163	58	27	34	...	...	2	1	11	3	29	10	19
35	Sept. 3	66·0	42·0	53·5	·447		80	0·37	268	110	37	23	21	...	...	3	3	9	1	7	12	12
36	,, 10	63·6	45·5	53·6	·561		89	0·27	254	111	37	12	14	...	...	1	...	9	3	10	9	15
37	,, 17	61·7	42·0	52·7	·208		86	0·42	276	124	39	19	18	...	1	4	2	4	1	8	15	25
38	,, 24	73·7	48·0	57·9	·749		87	0·82	271	117	28	27	19	...	2	1	4	3	2	3	12	26
39	Oct. 1	66·5	41·0	54·4	·388		88	0·54	273	131	40	24	24	...	2	7	...	6	3	7	13	18
40	,, 8	60·0	37·5	48·5	·356	780	86	0·55	284	132	42	22	22	...	...	4	4	3	2	9	7	23
41	,, 15	59·5	37·0	49·1	1·088	1823	79	1·37	286	167	44	31	38	...	3	6	5	5	1	6	11	33
42	,, 22	55·0	32·0	43·1	·936	1338	83	0·37	288	124	37	24	24	...	6	4	1	3	3	5	11	34
43	,, 29	49·2	33·0	42·6	·856	1412	91	0·87	286	148	48	25	26	...	4	3	1	4	...	7	13	37
44	Nov. 5	62·0	28·0	41·1	·582	1125	94	0·68	279	190	56	39	31	...	5	6	2	8	2	5	10	52
45	,, 12	58·0	43·5	51·1	·271	847	92	0·33	322	169	40	38	34	...	6	8	...	2	2	3	13	36
46	,, 19	61·5	35·0	48·6	·652	1221	89	0·43	258	155	38	34	16	..	5	1	2	9	1	3	20	47
47	,, 26	56·0	36·0	47·2	·350	1304	89	1·23	264	165	48	39	18	...	7	5	2	3	3	1	16	39
48	Dec. 3	54·2	37·0	44·9	1·351	1470	90	1·08	260	134	34	22	28	...	5	...	1	6	1	...	12	32
49	,, 10	52·0	23·0	38·2	·715	729	95	0·37	234	145	50	27	22	...	4	3	...	9	2	6	7	31
50	,, 17	42·0	24·0	33·9	1·157	942	95	0·88	388	204	42	50	40	...	7	6	3	12	1	4	20	51
51	,, 24	46·0	21·5	35·6	1·570	1374	90	1·69	282	187	55	40	30	...	12	4	2	11	...	3	17	41
52	,, 31	49·0	32·0	40·8	·680	858	97	0·04	259	191	59	47	31	...	11	4	2	12	...	6	13	57

II.—SANITATION.

Unhealthy Dwellings

i. *Influences affecting or threatening to affect injuriously the Public Health.* The old crowded, dirty, ill-ventilated class of houses have been greatly diminished during the year by the progress of the Improvement Scheme under the Artizans Dwellings Act, by the formation of the new street connecting Smallbrook Street with Navigation Street—and named John Bright Street—by the demolitions effected for the purpose of providing for the extension of the London and North Western Railway Station, and other minor improvements. The removal of such unhealthy property, and the existence in their stead of better buildings and comparatively open spaces, cannot fail to contribute a considerable share to the general results of sanitary work

Closets

The unhealthy and otherwise objectionable midden privies are gradually giving place to a better form of receptacle, and in all cases of disease coming within the range of my observation in which such middens exist, and appear from their condition or situation to constitute a danger, their reconstruction and conversion are required to be executed.

Surface Filth

Filthy streets, courts, and surfaces generally exert a very injurious influence on the health of the town, and it is extremely desirable that more attention be given to them. The question, however, though essentially a sanitary one, is made by law a matter of police, and owing to my representations at various times to your Committee, appeals have been made to the Watch Committee and instructions given to the police to carry out the bye-laws bearing on the question. The Assistant-Inspectors of Nuisances have also in their ordinary routine been required to use their influence to induce the public to refrain from scattering organic refuse on the ground. These measures however, appearing to have led to very meagre results, your Committee decided prior to putting the machinery of the law in motion against offenders to give at the same time a notice and a warning, and the following bill was issued, a copy being left at every house in the Borough;—

SURFACE FILTH.

Bill

Animal and vegetable refuse, whether liquid or solid, lying upon the ground, is injurious to health, and the Health Committee desire to remove this cause of sickness and mortality. It is only necessary to put all slops down the drains, and the solid matters behind the fire or into the receptacles provided for them.

The placing of such refuse on the streets is an act contrary to law, as shown by Section 28 of the Towns Police Clauses Act, 1847, viz:—

> "*Every person who throws or lays any dirt, litter, or ashes or night-soil, or any carrion, fish, offal, or rubbish, on any street, shall be liable to a Penalty of Forty Shillings.*"

The Police have received instructions to take measures to prevent the nuisance, but the Health Committee, being always extremely reluctant to resort to the powers of the law, earnestly appeal to the inhabitants to co-operate with them in this matter, and so render any legal proceedings unnecessary.

ALFRED HILL, M.D.,
Medical Officer of Health.

Health Department,
The Council House,
November 21st, 1881.

Surface Filth *continued*

It is to be feared that the advice given will be only very partially acted upon, and that it will be necessary to summon offenders before any great improvement can be effected in the thoughtless and careless habits of the people, who at least will have no cause of complaint against the Authorities after the repeated admonitions that have been given, the more especially as such measures are taken in the interests of their own health.

Uneven and porous surfaces

Surface filth is rendered more or less objectionable according to the nature of the surface on which it is deposited; if the surface is muddy or retentive, or absorbent like macadam in certain states of the weather, or like the joints of paved roads—unless such joints are made with bitumen—or the joints of the blocks used for guttering which often present a very large area and favorable conditions for soakage, or if the surface is flat or worn into hollows, or if the street is without sufficient inclination to allow liquids readily to flow along them, the ill effects of filth are so much the greater, and the evil is intensified in hot weather when decomposition becomes more active.

Curved contour of streets

Much has been done by the Borough Surveyor in giving a convex curve from side to side of the roads to cause them to throw liquids towards the gutters, but such a disposition of the surface only acts in the case of heavy rain, and animal and vegetable liquids thrown upon the street surface are retained by the mud for an indefinite time, or if they reach the gutters they too often stagnate there and soak into the joints owing to the conditions which I have described.

The prevention of filthy surfaces then is manifestly to be sought in two directions, first, in putting the powers of the police into effective operation to deter people from throwing filth upon the streets, and second, the better formation and maintenance of the street surfaces.

Remedies for dirty streets

There is no difficulty in applying the former remedy. The latter aspect of the question is not so easy to deal with, inasmuch as it involves considerable expense. I have such faith, however, in the value of preventive sanitation, that leaving all high considerations out of sight and taking only the low one of profit into account, I have no doubt that money spent in improving the sanitary condition of the streets would prove, as it has already done in similar innumerable instances, an excellent investment, and yield a large return in diminished injury to delicate goods, increased comfort, and greatly improved health.

Besides the curving of the roads above mentioned the remedies for dirty streets are (1) a level and impervious pavement, such as granite sets embedded in concrete and jointed with pitch or other bituminous non-porous material; (2) frequent sweeping up of the mud or dust and refuse; (3) the immediate removal of the heaps of sweepings so as to prevent their being scattered; and (4) the guttering made to consist of long

Surface Filth *continued*

hollowed stone blocks, placed end to end, forming a continuous smooth trough along which liquids will readily flow when the gradient is only very slight, similar indeed to the guttering which is at present laid in front of the Council House.

Cleanliness of granite pavement

One compensating feature about a good granite paved surface is that much less scavenging is required by it. In an excellent Report by the Borough Surveyor issued in 1874 it is stated by Mr. Till that even wood pavement yields thirty-six times less detritus and refuse than macadam does, and I have seen it stated that the best kind of granite pavement yields to the scavenger eighty times less, so that an immense economy would be secured in the number of horses, carts, and men required for the work of cleansing.

Unhealthy Building Sites

Unhealthy foundations have not been employed during the year, as far as I am aware, as sites for housebuilding, and I trust they will be studiously avoided in the future, as being highly calculated to foster and aggravate disease; they constitute only a form of surface filth even more dangerous, though unseen and therefore unsuspected, than the ordinary exposed surfaces.

House Drains

The direct connection of the interiors of houses with drains by means of discharge pipes, such as those of sinks, overflows, drain traps in cellars, etc., is still found to obtain, and, as I have already pointed out on many occasions, is a prolific source of ill health; but whenever such cases are discovered, steps are at once taken to remedy the evil.

Drain Traps in Cellars

Cellar traps are not only a source of great danger, but they are absolutely unnecessary, and yet it is still a common practice to build houses of the best kind provided with such dangerous openings.

Improper keeping of animals

The keeping of animals in houses or in improper situations, such as close to doors and windows of houses, or in confined courts and yards, is one of the influences injuriously affecting health to a very appreciable extent, and a practice to which therefore the attention of your staff is constantly directed.

Smoke

The excessive emission of smoke from furnaces has a distinctly injurious effect on health; besides the annoyance and discomfort it causes in soiling the skin and clothes, it thickens and darkens the air, thus shutting out the sun-light which is well-known to be essential to cheerfulness and health.

Fog

In foggy conditions of the atmosphere it intensifies the fog, making it yellow in colour and irritating in its action on certain organs, particularly the lungs. If any doubt existed on this point in relation to not only health but life it would be removed by a consideration of the facts to which I have adverted on page 28.

Your Committee has done good work during the year in mitigating the evil by warnings and by prosecutions resulting in fines and greater care in management, and it cannot be

Advantages of consumption of smoke

disputed that a considerable improvement in the air of the town is perceptible. Since, however, it has been incontestably established that furnaces of every kind can be so used as to completely consume their smoke, nothing less than a complete abolition of the smoke nuisance can satisfy the Sanitary Authority of a large and densely populated town, and it fortunately happens that the measures necessary to effect the improvement are a source of advantage rather than of loss to those who employ them.

Certification of causes of death

A certain proportion of the Deaths were uncertified, viz: 1·6 per cent., and these figures agree closely with the corresponding figures of last year. The distribution among the Registration Sub-Districts is seen below.

CERTIFICATION OF THE CAUSES OF DEATH IN 1881.

Registration Sub-Districts.	Total Deaths.	Certified by.		Not Certified.	Proportion per cent. of Deaths.		
		Registered Medical Practitioners.	Coroner.		Certified by.		Not Certified.
					Registered Medical Practitioners.	Coroner.	
Borough of Birmingham	7938	7088	726	124	89·3	9·1	1·6
Ladywood	907	829	65	13	91·4	7·2	1·4
St. Thomas	783	678	96	9	86·6	12·3	1·1
St. Martin	761	676	77	8	88·8	10·1	1·1
St. George	1525	1316	200	9	86·3	13·1	0·6
All Saints	1436	1295	105	36	90·2	7·3	2·5
Deritend	1312	1203	83	26	91·7	6·3	2·0
Duddeston	988	887	83	18	89·8	8·4	1·8
Edgbaston	226	204	17	5	90·3	7·5	2·2

Importance of early information as to infectious diseases

The want of early and full information as to the existence of infectious diseases, and the consequent inability to take precautionary measures against the spread of infection, is a very serious obstacle to the work of arresting preventable disease. It is true that a certain amount of such information is obtained, but the reports are entirely voluntary, they are received in only a very small number of cases, and from only a few of the medical practitioners of the town. The results therefore fall very short of what is desirable.

Notification of Infectious Diseases

It cannot be doubted for a moment that the full notification of infectious diseases is a subject of very great importance in regard to the arrest and prevention of Zymotic disease, and this is so much recognised, that at present in the absence of any general provision for it by the legislature, no less than twenty-four towns have acquired the necessary powers by special local acts, and eight others are applying in the present session for similar powers. Not only so, but a general bill for England and Scotland is about to be introduced into Parliament to provide "for the better notifica-

Notification of Infectious Diseases *continued*

tion of infectious diseases," and Ireland is moving for herself in a similar direction. It is to be hoped that these general bills may pass, as much time will be thus saved, and uniformity of working be secured. A general bill would decide at once upon whom should fall the responsibility of reporting to the Sanitary Authority. Some hold the view that it should rest with the medical attendant so to report, others that he should give a certificate as to the nature of the disease to the householder or person in charge of the patient, who should transmit it to the proper officer, others again that the person in charge of the patient should give notice of the illness without any part being taken in the matter whatever by the medical attendant, while lastly, as in Edinburgh, that both the medical attendant and the householder or person in charge should be required to supply the required information. It has even been proposed to make the reporting of cases permissive, but this is altogether out of the question, as it would leave matters about where they are at present, and past experience abundantly proves the utter uselessness of permissive sanitary measures.

Notification of Diseases Bill

Since writing the above a draft of the proposed Bill to provide for the better notification of Infectious Diseases for England and Scotland (proposed and brought in by Mr. Hastings, Sir Trevor Lawrence, Dr. Farquharson, and Mr. Brinton), has come into my hands. The following is a copy :—

A BILL TO

A.D. 1882.

PROVIDE FOR THE BETTER NOTIFICATION OF INFECTIOUS DISEASES.

WHEREAS it is desirable to provide for early notification to sanitary authorities of the occurrence of infectious diseases within their districts:

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows ; (that is to say,)

Short title.

1. This Act may be cited for all purposes as the Infectious Diseases Notification Act, 1882.

Construction of Act.

2. This Act shall be read and construed with the Public Health Act, 1875, 38 & 39 Vict. c. 55.

Certificate of infectious disease to be sent by medical practitioner to sanitary authority.

3. Any medical practitioner attending or requested to visit and attend any inmate of any building in the district of any sanitary authority suffering from small-pox, cholera, typhus, typhoid, scarlet, relapsing, or puerperal fever, diphtheria, measles, or erysipelas (or other acute infectious diseases, when included within the scope of this Act by order of the Local Government Board) shall immediately on becoming aware of the nature of the disease from which such inmate is suffering forthwith fill up, sign, and transmit, either personally or by post, to the office of the sanitary authority of the district a certificate in accordance with the form of notice contained in the schedule to this Act.

If no medical practitioner, notice to be sent by person in charge.

4. If no medical practitioner be attending on such inmate, then the occupier of such building, or if the occupier be incapacitated by illness the person in charge of such inmate, shall, so soon as he becomes aware that any such inmate is suffering from any infectious disease, forthwith transmit a notice by post to the sanitary authority of the district at their office as nearly as possible in the form contained in the schedule to this Act.

Sanitary authority to supply forms for certificate.

5. The sanitary authority shall supply gratuitously to every registered medical practitioner resident or practising in the district, and to every inhabitant, upon application, forms for the certificate by such medical practitioner or inhabitant, as the case may be, of the occurrence of infectious disease; and the sanitary authority shall pay to every registered medical practitioner who shall in accordance with this Act transmit any such certificate a fee of *two shillings and sixpence* in respect of the same; provided that not more than one fee shall become payable to the same medical practitioner for any certificate given by him in respect of any infectious disease occurring in the same building within thirty days of the date of the said certificate: Provided also that no fees under this Act shall be payable for the notification of infectious diseases occurring in workhouses, gaols, or public hospitals.

Fee.

Penalty for neglect.

6. Any person neglecting to transmit any notice required by this Act shall be liable to a penalty not exceeding *five pounds*, to be recovered in the same manner as penalties under the Public Health Act, 1875.

Sanitary Authority to make enactment known

7. Every sanitary authority shall take means to make this enactment generally known by affixing notices of the contents thereof in all public places where such notices are usually affixed within the district of such authority.

Act not to apply to Ireland.

8. This Act shall not apply to Ireland.

SCHEDULE.

FORM OF NOTICE.

NOTIFICATION OF INFECTIOUS DISEASES ACT, 1882.

"I hereby certify and declare, in pursuance of the above-named Act, that [1] living at No. [2] Street, is suffering from infectious disease, viz, [3]

Dated the day of 188

Registered medical practitioner, or householder, or person in charge, as the case may be.

To the sanitary authority of the district of ."

[1] Here state the name.

[2] Here state the number and name of street or description of house.

[3] Here insert name of disease.

I consider the proposed method of notification as calculated to be of very great value, while I am unable to discover any valid objection to its *modus operandi.*

Causes, Origin, and Distribution of Disease

ii. *The Causes, Origin, and Distribution of Disease* have continued to receive solicitous attention and careful investigation. On receipt of information of infectious cases the premises are carefully inspected with a view to detect structural or other defects, disinfectants are supplied, advice is given, the patient is removed, if circumstances are favorable, to the Borough Hospital, where the case is one of either Small Pox or Scarlet Fever, a warning is given against improperly incurring the danger of infection, particularly by sending children in the same house to school, and a letter is forwarded to the particular school attended by the patient and the other children of the house, giving information of the case, and requesting that the schoolmaster or mistress will take steps to prevent the attendance of the children until such attendance shall be certified by a medical man to be unattended with danger.

Schools and Infectious Diseases

Trades and Infectious Diseases

The same vigilance is exercised and precautions taken where tailoring, laundry work, milk selling, and similar pursuits are carried on in houses in which infectious diseases are found to exist.

Advice to the Sanitary Authority.

iii. *Advice to the Sanitary Avthority on matters affecting public health.* On various occasions I have been called upon to report and advise on matters coming in this category, among these may be specially cited an investigation at the end of the year into the sanitary condition of the farm at the Borough Asylum at Winson Green, to which attention was drawn by the occurrence of Typhoid Fever in the farm bailiff. The following is the Report presented to your Committee at the time:—

Typhoid Fever at the Borough Asylum, Winson Green

"John Hill, æt: 39, bailiff of the farm at the Borough Asylum. Case of Typhoid. The house is clean and healthy internally, but in the dairy adjoining there is a faulty bell-trap. A wash-tub is kept in the yard near the back-door, and there is no direct evidence that the drain in the yard is trapped, though it is said to be so underground. The farm yard is very large, and is occupied at present by 84 pigs, 19 cows and a bull; the number of pigs has however been as high as 280 and the cattle 25, besides horses and fowls. The general surface and the buildings and styes are kept clean, considering the number and nature of the animals. The wash-tubs and tanks however are very numerous, and, together with the numerous piggeries and manure heaps, exceedingly offensive. A box privy is attached to the piggeries for the use of the farm servants, many of whom are patients. The drains appear to be all trapped. There is a capacious tank receiving the liquid from a large manure heap, the overflow of which, like all the drainage, runs into the sewers. This tank, though provided with a pump for emptying it, has not been cleaned out for over two years; it is situated only twenty yards from the bailiff's house. The bailiff, who has been ill nearly two months and is slowly improving, tells me that for a few weeks before his illness about 20 pigs had swine fever, 8 or 10 of which died, the rest he killed; he says that their condition was very bad, the intestines and lungs being black and ulcerated, and they made him feel very ill. I cannot doubt that the enormous surface of filthy and excrementitious matter lying exposed and in a state of constant decomposition, besides being a great nuisance, which it undoubtedly is, constitutes not only a great danger to the health of persons on the farm but is also in a less degree prejudicial to that of the inmates of the Asylum itself; the farm has long been a nuisance to the neighbourhood, on the canal side from the filthy odours evolved from the piggeries, and in the Lodge Road from the manured ground and the gases emitted from the street gullies by the liquid filth in the sewers.

As the large number of animals kept seems to be in enormous excess of the requirements of the Institution, either for the purpose of consuming waste food and offal or for supplying food, it would be a decided sanitary advantage to contract as far as possible the scale of operations carried on there.

Although this case has been under treatment for seven or eight weeks, it is only within the last fortnight it has come to my knowledge through Mr. Councillor Lawson Tait. It is a striking illustration of the difficulty of obtaining voluntary notification of cases of preventable disease. I have no doubt that the patient's early removal from the place where his illness originated would have tended much to his advantage, just as his remaining there has in all probability greatly diminished his chances of recovery. In the absence of all knowledge of the case however it was impossible to take any steps even in the way of advice."

Typhoid at the Borough Asylum *continued*

Insufficiency of voluntary notification

iv. *Outbreaks of Infectious, Contagious, or Epidemic Diseases.* The difficulties in the way of coming to a really accurate conclusion as to the dates or the facts of outbreaks, and the extent and duration of any Infectious Diseases, in a large town like Birmingham, where there is no means of obtaining any but the most partial information of the existence of cases, are many and serious. If we were made acquainted at an early stage of a disease with its existence, we should be able to say without hesitation that at such a date a certain disease became prevalent or epidemic in a particular locality, but at present the only reliable statistics we possess are those relating to the fatal cases. It must be remembered that in several of the chief Zymotics, usually only a small per centage of the cases proves fatal, and where the character of the disease assumes a mild form, probably, only a very small per centage indeed. It must also be borne in mind that the Registration of the mortality occurs at a period considerably later than the actual outbreak, at a time in fact when, with a rapidly spreading disease, the mischief may be said to have occurred sometime previously, and to have already got beyond controul.

Outbreaks of Infectious Diseases

Information afforded by death certificates too late

In a great population, like that of Birmingham, with its very large proportion of infant population, under the present conditions, such diseases as Whooping Cough and Measles at least are ever present; in speaking, therefore, of outbreaks of these diseases, with such data as are at command, we can only allude under this heading to such times as these diseases appeared, judged from their fatality, to become unusually prevalent.

Whooping Cough seems to have been extremely rife during the whole year, at the close of which it showed no signs of abatement.

Whooping Cough

Measles also gained a hold on St. Bartholomew's Ward during the last quarter of the year, and shortly after, suddenly and quickly spread over nearly, if not quite, the whole of the Borough. The mortality from this disease became heavy during the closing weeks of the year.

Measles

Though the mortality from Scarlet Fever has been higher this year than last, yet it, in common with the other Zymotic Diseases not previously referred to, cannot be said to have presented the character of an outbreak.

Scarlet Fever

Unwholesome Food

v. *Examination of, and action in regard to, suspected, diseased, or unwholesome food.* During the year 415 seizures of meat unfit for human food have been made. The total weight of meat, fish, fruit, etc., destroyed amounts to 44 tons.

This part of sanitary work has been pursued as heretofore. Full details of it are given in Table V.

Diseased Meat Case

One very gross case of the use of diseased and putrid meat and horse-flesh for the manufacture of sausages, etc., was discovered, the description of which as reported by the *Daily Post* is as follows:—

> "THE TRAFFIC IN BAD MEAT IN BIRMINGHAM.
>
> "At the Birmingham Police Court yesterday, before Messrs. J. Deykin, W. M. Ellis, J. Lowe, G. Goodrick, and H. Richards; William Henry While, Talbot Street, Soho, was charged with having on the 26th of February in his possession, 86 pieces of horseflesh, the carcases of two sheep, 11 pieces of mutton, 1 sheep's liver, 2 faggots, 6 tins of beef sausages, 1 tin of pork sausages, 2 baskets containing pork sausages, 1 can of pork meat, 6 cans of dripping, 2 tins of fresh potted meat, 7 tins of returned potted meat, four pieces of polonies, 300 saveloys, 3 baskets containing black pudding, 1 barrel containing ropes, 10 returned sausages and 10 returned polonies intended for human food, and which were unfit for that purpose. Mr. Redfern (from the Town Clerk's Office) appeared for the prosecution, and Mr. Buller for the defence. In opening the case Mr. Redfern said the defendant appeared to have carried on a retail and wholesale business at 69, Talbot Street. The front portion consisted of a shop in which the retail business was carried on. At the back were premises which the defendant used for the manufacture of potted meat, saveloys, German sausages, what were called savoury ducks, and other things.
>
> "On the 26th of February, Inspector Latham observed the defendant conveying the carcases of three rotten sheep across St. Martin's Meat Market. His suspicions being aroused by that circumstance, he communicated with Superintendent Birckley, and they went together to the defendant's premises. First of all they went into the front shop. They saw a woman there, and asked her to let them inspect the premises at the back. The woman went to the back, and while she was away Inspector Latham observed in the shop a diseased leg of mutton which was in a state of decomposition. The woman returned and took them to the back premises. In a building were found a machine for chopping up meat, tins, benches, and all the paraphernalia for carrying on the business of a manufacturer of potted meat. In this place were found a large quantity of sausages, several tins of potted meat, most of it stale, a large quantity of dripping, and other articles

Diseased Meat Case—*continued*

intended for food. The witnesses then went into another room, where they found the complete carcases of two sheep and a number of pieces of a third sheep, minus the leg. Inspector Latham found in a vessel resembling a corn-bin a sack containing 86 pieces of horseflesh; that was in the place where the cutting up was carried on. On that, Superintendent Birckley sent for Dr. Hill and Dr. Bostock Hill, and those gentlemen examined the meat. When Mr. Birckley returned with them, the defendant was driving into the yard with a horse and cart. Birckley asked the defendant where the missing leg of mutton was, and he said candidly that it was in the shop. Latham went into the shop, and saw there the defendant's wife, but the leg of mutton had disappeared. Latham asked where it was, and she commenced crying and took Latham up stairs, where the leg of mutton was found in the defendant's clothes-box. In the defendant's cart Superintendent Birckley found a large quantity of sausages, potted meat, and other things of a similar kind to those discovered in the manufactory. Latham afterwards found a quantity of powdered raddle, and Dr. Hill would tell the bench that he found traces of raddle in the potted meat, it being used as a colouring matter.

"Mr. Birckley (Superintendent of the Markets) said he accompanied Inspector Latham to the defendants premises in Talbot Street. Having been into the shop, they were shown by a woman into a building at the back which had been a slaughterhouse, and was now used as the defendants manufactory. They found there a number of tins of new manufactured sausages, tins of potted meat, tins of dripping, &c. There was a large chopping machine, and outside there was an apparatus for smoking polonies and German sausages. They next went into a place called the cutting up room, and there saw the diseased sheep hanging up. On the cutting board were portions of a sheep very badly diseased, one leg being missing. In a box like a corn-bin there was a large bag which contained 86 pieces of horseflesh. Upon this he fetched Dr. Hill and Dr. Bostock Hill, and when he returned he saw the defendant, whom he asked to account for the horseflesh being upon his premises. Defendant said he did not know it was there; he asked him where the missing leg of mutton was, and he said it was in the shop. Inspector Latham fetched it, and it was found to belong to the third carcase in the cutting up shop, and was in a very bad state. Defendant's cart was examined, and pieces of sausages which had not been sold, and potted meat which had been returned, were found. He had the whole of the meat on the premises removed. He did not find a single piece of good meat on the premises. *By Mr. Buller:* He did not consider that the meat was in such a state as would have been passed by the meat inspector in the

Diseased Meat Case—*continued*

market. The mutton was affected with sheep rot. Defendant told him that he did not know how the horseflesh had got on to his premises. *By Mr. Goodrick:* He found a vessel full of fat, which was stale and stained with colouring matter.

"Inspector Latham gave corroborative evidence, and stated that on going into the shop to fetch the leg of mutton he found it missing, and discovered it in the defendant's clothes-box in his bed-room. He found a tin containing a spoon and some raddle or red ochre on the premises. *By Mr. Buller:* He saw the defendant taking three carcases across the meat market, which, in his opinion, were not fit for food, and he should be surprised if they had been passed by the meat inspector.

"Dr. A. Hill (Medical Officer of Health) said that he examined the meat on the premises, where he was fetched by Superintendent Birckley. In the first place there were two carcases of sheep and a portion of another carcase full of serosity—running with wet—clearly showing that the sheep suffered from a constitutional disorder. He had no doubt that they were what were called rotten sheep. They were totally unfit for food. The potted meat was red, very offensive, stale, and sour. It was coloured red to disguise it. He could not tell whether it was beef or mutton. It had the appearance of beef, but he thought it was probable it was made from diseased mutton. The pieces of meat in the bag were horseflesh, and not in a fit condition to eat. The freshly prepared sausages having been mixed up with bread and spices, it would be impossible to say whether they were diseased or not, but as the Medical Officer of Health, and from the fact that the meat he saw was diseased and putrid, he felt it his duty to recommend that all the meat should be taken away from the premises. The distribution of this stuff amongst the public was liable to cause disorder of the Digestive Organs and Diarrhœa, which was the most fatal complaint they had in Birmingham last year. Such food was likely to aggravate an epidemic of that kind, and its ulterior effects were blood poisoning, producing still more disastrous results, possibly conveying parasitical diseases to the human beings who ate it. On every ground its use was to be deprecated. The coloring matter was a mineral substance. *By Mr. Buller:* The coloring substance was red ochre or raddle, and in small quantities was not injurious. He would not say that all the fresh sausages were bad, but he thought it his duty to condemn all in consequence of the surrounding putrid meat. He certainly did not think such meat would have been passed by the meat inspector three or four days before.

"Dr. Bostock Hill confirmed the evidence given by Dr. Alfred Hill."

Mr. Buller having addressed the Magistrates for the defence—

Diseased Meat Case—*continued*

"Mr. Ellis said: This is about as bad a case as ever came before this Court, and it is such an one that we must mark in the strongest manner we can. I am very sorry we cannot give the defendant more than three calendar months imprisonment. I am quite sure he richly deserves it. I hope it will be the means of breaking up this foul establishment, and prevent other people from carrying on in a similar way. Defendant would have three months imprisonment.

Sentence

"On the application of Mr. Redfern, the Magistrates also ordered the defendant to pay the costs."

Costs

vi. *Duties under Sanitary Bye-Laws and Regulations.* These have reference to Common Lodging Houses, Houses let in Lodgings, Slaughter Houses, Cow Sheds, Dairies, and Milk Shops. The registered Common Lodging Houses in 1881 numbered 99, and accommodated 2,084 lodgers; the usual attention has been bestowed upon them, 12,574 visits having been made, 9,422 in the daytime and 3,152 at night.

The customary good results have followed the sanitary supervision which this class of houses is required by law very properly to receive. It is a remarkable fact that no death has occurred in any Common Lodging House during the year.

Common Lodging Houses

The number of Houses let in Lodgings registered under the Public Health Act of 1875, is 188, they are licensed to receive 999 lodgers, which is equal to an average of 5·3 per house. The visitation of this class of houses is entrusted to one Assistant-Inspector, and his visits are made only in the daytime, the class of persons concerned being of that respectable character which renders visits at night unnecessary.

Houses let in Lodgings

SLAUGHTER-HOUSES.

In 1879 and 1880 there were 280 of these establishments, 155 being licensed and 125 registered. In 1881 there existed 282, of which 157 were licensed and 125 are registered, so that the number of registered slaughter-houses remains unaltered, while the licensed slaughter-houses are augmented by the establishment of only two others. Keeping in view the undesirability of multiplying private slaughter-houses, for reasons which I have frequently explained in previous reports, it is satisfactory to find that the Markets and Fairs Committee are using their influence to limit the number as far as possible; at the same time the fact is not to be ignored that with an increasing population a greater amount of accommodation for slaughtering must, some time or other, necessarily be provided. The long hoped for public Abattoir seems as far from realisation as the new Cattle Market with which it has been proposed to

Slaughter-houses

Abattoir

Abattoir *continued*

associate it, but it is clear that if the licensing of private slaughter-houses is to be refused, a time will soon arrive when the provision of some suitable public building for the purpose will be necessary.

DAIRIES, COW SHEDS AND MILK SHOPS.

Dairies, Cow Sheds and Milk Shops

From the report of Mr. Birckley, Superintendent of the Markets, given in Table V, it will be seen that 3,615 visits have been paid to the registered Milk Shops in the Borough in order to ascertain that the places for the storage of Milk were kept clean, while for the purpose of seeing that the necessary regulations required to be observed by the owners of the Cow Sheds were strictly obeyed, 1,310 visits were made to the Cow Sheds in the Borough. On all occasions the Inspector appointed for these purposes reported that he found both the Dairies and Cow Sheds in good order.

CANAL BOATS' ACT, 1877.

Canal Boats' Act

Thirty-seven additional boats were registered last year under the provisions of this Act. Ten persons were summoned during the year for not having their boats registered, and each of them was accordingly convicted and fined.

Offensive Trades

vii. *Offensive Trades.* The principal offensive or noxious trades are given in a list below, and the number of these existing in the Borough is also stated. This list does not include the ordinary slaughter-houses which are referred to on page

Tripe Dressing ...	... 52	Nitric Acid Manufacture	5
Tallow Chandling	... 9	Sulphuric and Nitric Acid Manufacture	3
Bone Boiling ...	... 5	Chemical Manure Manufacture...	2
Gut Cleaning ...	... 4	Sulphuric Acid and Sulphate of Ammonia Manufacture	1
Leather Dressing	... 3	Nitric and Sulphuric Acid and Muriate of Ammonia Manufacture ...	1
Dog Meat Boiling	... 2		
Horse Slaughtering	... 2		
Tanning	... 2		
Blood Refining ...	... 1		
Offal Boiling ...	... 1		
Varnish Boiling...	... 8		
Vegetable Charcoal Burning	2		
		Total	103

Tanning and bone boiling

An attempt was made during the year to resuscitate the trade of tanning and bone boiling in Edgbaston Street. The premises were very dilapidated and the situation altogether unsuitable for such an offensive trade. I find that the tan pits have been filled up, the boilers removed and all offensive processes discontinued. The buildings are used as a drysalter's warehouse, a bookbinding shop and a workshop for making and repairing furniture.

Offensive Trades *continued*

Tallow Melting Works

Works for the extraction of Tallow were opened between Blews Street West and Spring Hill without the consent of the Urban Authority; this proceeding was in contravention of the 112th section of the Public Health Act, 1875, and, as a great nuisance was caused, legal notice was served upon the proprietor to discontinue the process, which was forthwith put a stop to.

Application in the required form was made for permission to establish a Varnish Manufactory in Bell Barn Road; I visited and examined the premises and duly presented to your Committee a report on the matter; the application was refused.

Fortnightly Reports of Medical Officer of Health

viii. *Fortnightly Reports of the Medical Officer of Health to the Health Committee.* At each Meeting of your Committee I have presented a Report on various subjects, embracing—

1. The general health of the Borough, including the total death-rate, Zymotic death-rate, and average age at death.
2. The occurrence of Infectious disease, and the results of the investigation of certain of the most dangerous cases.
3. The Waters supplied from shallow wells and by the Corporation.
4. Articles of Food, Drink, and Drugs obtained for analysis.
5. Diseased and unwholesome Food.
6. Reports on special questions in pursuance of resolutions, instructions, and otherwise.

BOROUGH HOSPITAL.

Borough Hospital

This Institution has received during the year 17 cases of Small Pox and 333 of Scarlet Fever, making a total of 350. The admissions during the last seven years are shown in the following statement:—

Cases admitted each year

DATE.	Small-Pox.	Scarlatina.	Total Cases.
1874.			
4th Quarter ... ... (2nd Nov. to the end of the year)	194	—	194
1875.			
1st Quarter	186	—	186
2nd „	169	—	169
3rd „	53	13	66
4th „	12	7	19
Totals	420	20	440
1876.			
1st Quarter	2	1	3
2nd „	2	4	6
3rd „	2	5	7
4th „	5	28	33
Totals	11	38	49

Borough Hospital *continued*

DATE.	Small-Pox.	Scarlatina.	Total Cases.
1877.			
1st Quarter	4	20	24
2nd "	19	7	26
3rd "	15	13	28
4th "	—	3	3
Totals	38	43	81
1878.			
1st Quarter	3	13	16
2nd "	4	34	38
3rd "	6	139	145
4th "	7	238	245
Totals	20	424	444
1879.			
1st Quarter	1	60	61
2nd "	—	37	37
3rd "	3	40	43
4th "	—	47	47
Totals	4	184	188
1880.			
1st Quarter	2	45	47
2nd "	3	27	30
3rd "	8	36	44
4th "	3	62	65
Totals	16	170	186
1881.			
1st Quarter	8	36	44
2nd "	8	79	87
3rd "	1	91	92
4th "	—	127	127
Totals	17	333	350

An inspection of this table shows that the number of admissions of Scarlet Fever cases in 1881 is 96 per cent. higher than in the previous year; this increase, judging from the mortality from Scarlet Fever, is not due to a corresponding increase of the disease which is found to have occurred only to the extent of 33 per cent.; it must, therefore, be very largely due to an increased appreciation and employment of the benefits of the institution.

Cases from Suburban Districts

Five of the Scarlet Fever cases were received from suburban districts, and should, therefore, be deducted from the total number.

As to Small Pox cases admitted, it is seen that 17 were received in 1881, while only 16 were admitted in 1880; this is an increase of only 6 per cent., but as eight of the cases were sent in from districts outside the Borough, and represent 47 per cent. of the total number, the number of cases received from the Borough actually shows a very considerable decrease.

Borough Hospital *continued*

In order to prevent the possibility of spreading Scarlet Fever by patients leaving the Hospital, I formulated, at the request of your Committee, the following suggestions :—

Precautions against spread of Scarlet Fever

"1. That no inmate be discharged till desquamation be complete, and that particular attention be paid to the scalp and the feet. That the foot-bath be used frequently during convalescence.

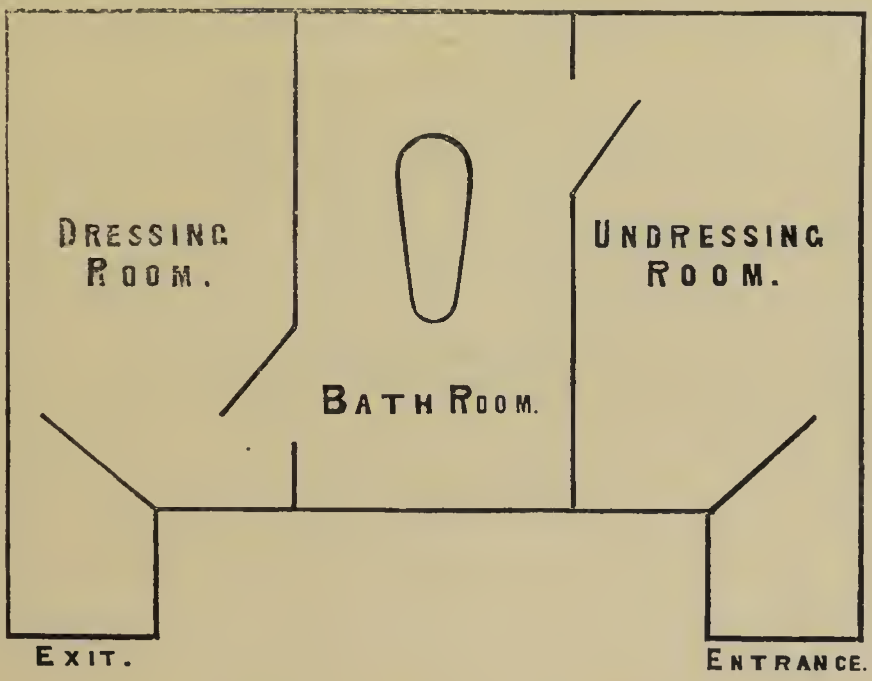
2. That, in addition to the series of baths in which carbolic soap should be used, the patient be bathed the evening before and on the morning of discharge. That it would be an advantage to rub the patient, before dressing, with carbolic oil.

3. That the disinfected and pure clothes be deposited by the porter in the bath-room or separate dressing room, and be put on by either the patient himself or the nurse dressed in a clean cotton dress.

4. That the patient in leaving go away from the bath-room direct.

5. That it would be an advantage to have a series of three separate rooms for undressing, bathing, and dressing, on discharge, arranged thus :—

Plan of Bath



Children might be carried in a clean blanket on the morning of discharge from the ward to No. 1 room."

Baths in a detached building have been constructed in accordance with the plan of the above sketch, and the other recommendations have been put in practice, with the necessary result that complete protection from the danger of spreading infection is practically assured.

Borough Hospital *continued*

The following circular was issued to the medical practitioners of the Borough, as a reminder of the conditions of admission to the Borough Hospital.

BOROUGH OF BIRMINGHAM.

Health Department,
The Council House,
April 22nd, 1881.

Dear Sir,

BOROUGH HOSPITAL.

In connection with the above Institution, permit me to call your attention to a few facts.

The Borough Hospital receives Patients suffering from Scarlet Fever and Small-Pox only.

An Ambulance is provided for the removal of Patients suffering from each disease.

Admission is given only on a Medical Certificate of fitness and willingness to be removed. This Certificate should specify the name, age, and address of the patient and the nature of the disease, and should be sent either to me at the Council House or to the Hospital ; *and to the Hospital only, between mid-day on a Saturday and the following Monday morning.* It is very desirable in the interests both of the patients and of the public at large, tha intended removals to the Hospital be effected as early as possible.

Disinfection of clothing, bedding, etc., is done on application, and the articles are both fetched and returned in vehicles specially devoted to the purpose.

I remain, Dear Sir,
Yours faithfully,
ALFRED HILL, M.D.,
Medical Officer of Health.

DISINFECTING STATION.

Disinfecting Station

The articles purified at the Disinfecting Station, in Bacchus Road, are given in the following Table, together with those in preceding years. The smaller amount of work done, compared with that in the years 1878 and 1879, is a satisfactory evidence of the limited existence of Zymotic disease of a dangerous character. The number of articles is certainly rather higher than last year, which is accounted for by the somewhat greater prevalence of certain Zymotics.

ARTICLES DISINFECTED.	1876.	1877.	1878.	1879.	1880.	1881.
Beds	56	115	466	221	128	181
Mattresses	113	126	290	339	229	358
Sheets	48	346	424	192	73	164
Blankets	92	103	353	241	113	290
Counterpanes	37	68	262	154	70	121
Pillows and Bolsters	185	315	899	586	317	481
Other Articles	141	330	4,282	2,645	1,632	1,940
Totals	672	1.403	6,976	4,378	2,562	3,535

Disinfecting Station *continued*

Cost of Station

The estimated cost of the Station during the year is—

	£	s.	d.
Wages	135	4	0
Horse Keep, Shoeing, &c.	47	0	0
Gas for Heating and Lighting ...	11	17	3
Coal	4	11	5
Water	2	0	0
	£200	12	8

MORTUARIES.

Mortuaries

72 bodies have been deposited in these Institutions during the year, last year the number received was only 52. The bodies were distributed among the five Mortuaries now in existence in the Borough, as stated in the Table below, which also contains the figures for the five preceding years:—

	1876.	1877.	1878.	1879.	1880.	1881.
Moor Street	3	32	32	28	15	13
Duke Street	1	12	10	11	12	9
Kenion Street	—	8	10	14	10	25
Ladywood Road	—	13	5	12	7	17
Moseley Street	—	—	—	6	8	8
Totals	4	65	57	71	52	72

WATER SUPPLY.

Water Supply

The two great sources of water supply, the reservoirs of the Corporation and the surface wells of the town have, during the year, been kept constantly under observation, and analysis of and reports upon them made from week to week and month to month to your Committee.

Corporation Water

The Corporation supply, although liable to variation in quality from rain, floods, drought, and extension or alteration of works, continues to show a progressive improvement in every essential feature, as will be seen by reference to Table IX., on pages 60—79.

Shallow Wells

The Water of the shallow wells is, as would be expected, of the same character as formerly, and the majority of the samples analysed have proved unfit for domestic use, as well on account of their great hardness as the sewage contamination which they exhibit. The number I examined during the year is 379, of which the great majority were closed after a consultation between the owners and your Committee, very few cases having to be submitted for magisterial decision.

Miscellaneous Sanitary Analyses

I have also made twenty-three miscellaneous analyses during the year, of substances having a connection with public health, and amounting, exclusive of articles of Food, which come under the operation of the Sale of Food and Drugs Bill, to a total of 414 analyses for sanitary purposes.

PUBLIC BATHS.

Public Baths

The figures for 1881 show that the aggregate number of bathers at the three bathing establishments provided by the Town Council, was lower than the number in the previous year, which, however, was exceptionally large.

RETURN OF THE NUMBER OF BATHERS AT EACH OF THE CORPORATION BATHS FOR THE LAST EIGHT YEARS.

	KENT ST.			WOODCOCK ST.			NORTHWOOD ST.		
	Men.	Women	Total.	Men.	Women.	Total.	Men.	Women.	Total.
1874	77138	4796	81934	47317	1889	49206	80801	2899	83700
1875	105162	4931	110093	73341	2055	75396	100858	2827	103685
1876	107647	4880	112527	76781	2451	79232	99941	2832	102773
1877	95428	4397	99825	58432	2012	60444	83844	2153	85997
1878	106820	6016	112836	64680	2171	66851	101059	2129	103188
1879	105395	7274	112669	48794	1501	50295	82408	2027	84435
1880	108253	8468	116721	71843	2051	73894	115446	3166	118612
1881	115260	8768	124028	64014	1762	65776	106550	2704	109254

Diminished use of the Baths

The fact that bathing has diminished during the year 1881 is probably due largely to the influence of weather; the decrease last year is the more striking when the fact is taken into account that nearly 45,000 school children were admitted to the baths under privileges not before conferred.

SEWERAGE WORKS.

Sewerage Works

During the year 1881, 1,356 yards of Sewers were constructed by the Corporation in Public Highways or underneath private lands, and, in addition thereto, several miles of Sewers were constructed in undeclared Highways or in Streets taken to during the year.

Total length of sewers

The length of Sewers at present under the charge of the Council in Streets taken to or in Streets recently completed and underneath private lands is about 179 miles, an increase of about 3½ miles on last year.

STREETS AND ROADS.

Streets and Roads

The length of Streets and Roads in the Borough at the end of 1881 was 197 miles, of which 177 miles have been declared Highways by the Corporation, to which should be added 12½ miles completed and under their care, though not formally declared Highways, leaving 7½ miles of undeclared Highways to be completed.

Length of paved roads

Fifteen-and-a-half miles of carriage ways are paved, whilst 2¼ miles of the Tramway route in Bristol Street and Bristol Road is partly paved and partly macadamised, so that no extension of such pavement has been effected during the year.

NIGHTSOIL AND REFUSE DISPOSAL.

Midden Privies

The midden privies in the Borough still continue to be gradually abolished, and the less objectionable pan privies substituted.

Pans

The number of Pans in the Borough at the end of the year was 34,112, necessitating their removal in 1,726,751 instances; the number of loads of ashes collected in the tubs provided for their reception was 74,084. From the middens still remaining, 61,396 loads were removed during the year, and it is estimated that there are between six and seven thousand water closets in the Borough.

The

SANITARY WORK

Sanitary work

of the Borough has been rapidly and energetically carried on, so many as 7,710 notices having been issued for the abatement of nuisances during the year.

More than 2,200 drains have been opened, 399 foul and defective urinals removed, 1,765 foul ashpits and privies repaired, 734 yards paved, and 1,190 filthy houses cleansed and whitewashed. Eighty-six notices have been served for the removal of Swine kept in improper places, 601 for the disconnection of sinks from the drains, 1,076 for the removal of wash and other offensive matter, 276 for the reconstruction of offensive midden privies, and 29 for the abatement of overcrowding. There have also been 2,258 filthy privies limewashed, and 668 houses disinfected and cleansed after the existence in them of Zymotic disease.

Full particulars of the work of the Inspection Department are to be found in Table V.

Inspector of Nuisances

Mr. Thomas Hastings Dale entered upon his duties as Inspector of Nuisances in February, and has shewn himself well acquainted with them, and active and zealous in their

Sanitary Department

performance. No material change took place in the staff of Assistant-Inspectors and other officers of the Health Department.

I have pleasure in again acknowledging the courtesy and kindness extended to me by your Committee, and the willing and valuable assistance rendered me by my colleagues and the whole official staff.

I remain,
Mr. Chairman and Gentlemen,
Your obedient Servant,
ALFRED HILL, M.D.,
Medical Officer of Health.

III. APPENDIX.

(TABLES, MAP, AND CHART.)

TABLE III.

Mortality from certain classes of Diseases, and proportions to population and to 1,000 deaths in 1881.

CLASS OF DISEASES.	Total Deaths.	Death Rate per 1,000 of the population.	Proportion of Deaths to 1,000 Deaths.
1—Seven principal Zymotic Diseases	1,128	2·8	142
2—Pulmonary (other than Phthisis)	1,792	4·5	226
3—Tubercular	858	2·1	108
4—Wasting Diseases of Infants ...	691	1·7	87
5—Convulsive Diseases of Infants...	413	1·0	52

NOTES.

1.—Includes Small-Pox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever, and Diarrhœa.

3.—Includes Phthisis, Scrofula, Rickets, and Tabes.

4.—Includes Marasmus, Atrophy, Debility, Want of Breast Milk, and Premature Birth.

5.—Includes Hydrocephalus, Infantile Meningitis, Convulsions, and Teething.

TABLE IV.

Showing the Number of Deaths in the Ten Years, 1871 to 1880, from the Seven Principal Zymotic Diseases, and the Number in 1881.

	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	Annual average of 10 years, 1871—1880.	Proportion of deaths to 1,000 deaths in 10 years 1871—1880.	1881.	Proportion of Deaths to 1,000 Deaths in 1881.
Small-Pox	61	298	125	637	174	0	8	5	0	2	132	14·9	6	0·8
Measles	400	44	123	139	141	87	309	54	169	63	153	17·3	132	16·6
Scarlet Fever ...	127	409	587	737	265	204	237	995	306	123	399	45·0	164	20·7
Diphtheria	76	82	107	74	55	58	52	83	71	51	70	7·8	57	7·2
Whooping Cough ...	313	263	169	242	438	189	369	455	384	217	305	34·3	362	45·6
Fever	184	188	203	201	204	147	144	147	87	84	159	17·9	66	8·3
Diarrhœa	702	640	728	622	868	651	457	682	234	784	635	71·6	341	42·9
TOTAL	1,863	1,924	2,042	2,652	2,145	1,336	1,576	2,421	1,251	1,324	1,853	208·8	1,128	142·1
London	19,455	12,699	11,385	11,230	13,411	12,565	10,292	14,734	12,216	13,661	13,445	157·1	13,811	170·3

TABLE VI.

Meteorological Condition of the Air, and Amount of Rainfall for the Year ending December 31st, 1881.

Observed at 9·0 a.m. at The Hollies, Winson Green, by myself and Dr. A. Bostock Hill.
The cistern of the Barometer is 476 feet above the mean level of the sea.
The other Instruments are about 473 feet above the mean level of the sea.

1881.	Pressure of Air.	Temperature of the Air				Rainfall. Gauge 1 foot diameter. Receiving surface 3ft. 8in. above the ground.		
	Barometer	Reading of Thermometer.						
Months.	Mean Monthly Reading (corrected and reduced to 32 degrees Fahrenheit)	Highest in Shade.	Lowest in Shade.	Range of Temperature in the Month.	Mean Temperature in the Month.	Depth of Rain deposited upon a square foot of surface, in inches and parts.	Measurement converted into weight per Acre.	Number of Days on which Rain fell, when 5 100ths of an inch or more was measured.
	In Parts	Dg. Prts	Dg. Prts	Dg. Prts	Dg. Prts.	In Parts.	Tons.	
Jan. ……………	29·441	46°·0	6°·0	40°·0	28°·5	0·96	97	4
Feb. ……………	29·314	50·0	23·0	27·0	36·3	3·43	346	13
Mar. ……………	29·380	58·5	23·0	35·5	41·1	2·37	239	11
April ……………	29·464	60·5	25·0	35·5	44·3	0·78	79	3
May ……………	29·579	74·0	34·0	40·0	53·9	1·48	150	7
June ……………	29·519	76·5	37·0	39·5	57·9	1·74	176	15
July ……………	29·503	88·0	47·0	21·0	62·5	1·66	168	9
Aug. ……………	29·343	81·0	47·0	34·0	57·4	5·18	523	16
Sept. ……………	29·486	73·7	41·0	32·7	54·4	1·65	167	9
Oct. ……………	29·496	60·0	32·0	28·0	45·2	3·17	320	11
Nov. ……………	29·418	62·0	28·0	34·0	47·3	3·13	316	16
Dec. ……………	29·436	54·2	21·5	32·7	37·9	3·40	344	9

PRICES OF COAL, FLOUR, POTATOES, AND BUTCHERS' MEAT, AND THE NUMBER OF PAUPERS RELIEVED IN THE PARISH OF BIRMINGHAM DURING THE YEAR ENDED MICHAELMAS, 1881.

Years.	Average Prices of Food and Fuel.				Pauperism. Weekly Average of Paupers relieved during the Year.	
	Coal per ton.	Flour per 224lbs.	Potatoes per ton.	Butchers' Meat per lb.	In-door.	Out-door.
1881.	9/4	26/10	71/-	Beef -/5¾ Mut'n -/8	2,596	4,767
1880.	10/-	27/-	75/-	-/6⅝	2,415	4,825

TABLE VII.

RAINFALL AND TEMPERATURE IN EACH MONTH AND YEAR FROM 1871 TO 1881.

MONTH.	1871.			1872.			1873.			1874.			1875.			1876.			1877.			1878.			1879.			1880.			Average for 10 years 1871—80.			1881.		
	Rainfall,	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.
	°		°			°												°			°			°			°			°			°			°
January ...	1·485	9	32·5	4·750	21	40·4	4·48	19	41·4	1·86	10	41·4	3·12	16	44·4	1·75	6	36·1	4·47	18	42·8	1·96	11	43·2	2·01	10	32·4	0·69	3	33·7	2·65	12	38·8	0·96	4	28·4
February ...	1·730	9	42·5	3·410	15	43·8	1·76	11	35·1	2·685	9	38·2	1·675	10	36·0	2·55	14	39·6	2·43	12	44·5	1·11	8	40·1	3·68	18	38·5	3·12	16	41·0	2·41	12	39·9	3·43	13	36·3
March ...	1·240	8	44·1	2·365	12	44·0	2·66	14	39·9	1·72	16	44·6	0·81	5	40·7	3·16	22	40·8	2·72	15	40·3	1·17	9	43·6	0·95	9	40·7	0·53	3	41·7	1·73	11	42·0	2·37	11	41·0
April	3·850	10	47·6	3.925	10	47·6	0·77	7	46·6	1·45	5	50·5	1·09	7	47·2	1·98	13	47·5	2·82	12	45·0	2·17	11	48·3	3·39	16	43·6	2·35	7	46·0	2·47	10	46·9	0·78	3	44·3
May	2·165	7	53·6	2·265	11	49·3	2·545	12	50·6	3·24	7	50·5	2·10	12	54·8	1·00	5	48·1	2·27	9	48·2	5·33	21	54·7	4·26	13	50·1	1·62	6	50·6	2·77	10	51·0	1·48	7	53·9
June	3·005	11	54·7	5·770	15	58·3	1·65	9	58·2	1·13	5	58·5	3·915	15	58·0	2·23	8	58·0	2·96	10	59·0	3·37	14	60·8	6·16	19	56·0	2·55	17	56·2	3·27	12	52·7	1·74	15	57·9
July	4·550	17	59·5	3·565	11	65.0	5·16	11	62·3	1·26	8	64·0	8·14	13	58·9	1·42	6	63·7	5·03	12	59·8	0·98	7	63·7	3·97	18	59·0	4·80	20	59·8	3·89	12	61·5	1·66	9	62·5
August ...	2·180	6	61·7	3·810	10	60·3	3·435	18	61·1	1·985	14	60·1	1.80	7	62·0	1·22	5	62·7	2·29	10	61·6	6·44	18	62·0	5·72	13	60·1	0·80	4	60·9	2·96	10	55·2	5·18	16	57·4
September ...	6·010	11	55·5	2·645	8	57·0	2·13	8	53·4	4·545	19	56·4	3·89	14	59·3	5·83	21	55·7	4·58	13	54·9	3·15	13	56·9	3·59	12	55·6	4·63	10	58·7	4·09	13	56·3	1·65	9	54·4
October ...	1·955	12	49·6	4·650	19	47·1	1·86	9	47·8	2·71	12	51·2	7·21	16	47·4	2·26	9	53·0	1·91	12	49·1	3·66	16	52·2	2·06	9	49·6	6·38	11	44·0	3·46	11	49·0	3·17	11	45·2
November ...	0·835	4	37·7	3·475	18	44·3	1·83	10	43·0	1·45	10	41·6	3·31	10	41·9	2·94	8	43·4	2·87	15	47·4	3·15	11	39·4	1·98	12	40·9	2·30	9	40·1	2·41	11	41·9	3·13	16	47·3
December ...	1·615	9	39·0	4·505	17	41·1	0·975	5	41·3	4·375	16	33·9	1·45	10	39·1	5·68	19	42·9	2·40	11	41·3	2·44	11	31·2	1·07	5	35·3	3·48	13	41·7	2·77	12	38·6	3·40	9	37·9
Year	30·620	113	49·0	45·135	167	49·8	29·255	133	48·6	28·41	131	49·0	38·51	135	49·1	32·02	136	49·4	36·75	149	49·1	34·93	150	49·6	38·84	154	46·8	33·25	119	48·0	34·77	138	48·8	28·95	123	47·2

TABLE VIII.

New Cases of Disease coming under Treatment during the Year ending December 31st, 1881, at the following Institutions, &c.

DISEASES.	I. General Hospital.	II. General Dispensary	III. Queen's Hospital.	IV. Children's Hospital.	V. The Workhouse.	VI. Out-door Pauper Patients.	VII. Boro' Hosptl.	TOTAL.
Small Pox	...	...	...	...	...	4	33	37
Measles	33	25	2	8	116	115	...	299
Scarlet Fever.........	56	22	...	98	19	120	322	657
Diphtheria	...	3	2	20	...	...	...	26
Whooping Cough ...	40	62	11	1,274	67	184	...	1,638
Croup	7	1	...	13	...	3	...	24
Diarrhœa	932	54	133	835	122	311	...	2,387
Dysentery	4	...	...	...	...	2	...	6
Asiatic Cholera	...	...	...	...	...	...	...	...
Erysipelas	35	30	43	9	10	31	...	158
Continued Fever ...	...	...	...	...	...	1	...	1
Typhus	...	..	...	...	8	...	...	8
Enteric or Typhd.	15	17	16	3	1	...	...	52
Relapsing	...	..	...	...	...	...	...	...
Febricula	53	19	5	207	...	379	...	663
Ague	...	...	...	...	...	...	...	...
Rheumatic Fever ...	44	99	56	24	...	24	...	247
Puerperal Fever ...	...	7	...	...	...	...	...	7
Bronchitis & Catarrh	598	494	502	1,574	829	2,208	...	6,205
Influenza	...	4	...	...	...	. .	...	4
Pleurisy & Pneumonia	156	88	54	76	44	45	...	453
Phthisis	202	948	465	55	139	146	...	1,955
Constl. Syphilis	269	116	177	186	363	33	...	1,154
All other diseases ...	14,606	15,392	7,464	9,048	3,048	4,524	...	54,082
Accidents	11,091	164	6,692	97	181	62	...	19,287
Totals.........	28,141	17,535	15,622	13,527	4,947	8,292	355	88,465

The above returns are made by (I.)—F. A. Mouillot, Esq., M.B. and H. Gilbert Barling, Esq., M.B.; (II.)—T. Nelson, M.B., Sydney W. Haynes, M.B., D. Holmes, M.B., and G. P. Best, M.B., Esqs.; (III.)—J. H. Vinrace, Esq., and F. Vinrace, Esq., M.D.; (IV.)—Dr. Alice J. S. Ker; (V.)—Walter Bowen, Esq., Clerk to the Guardians; (VI.)—A. B. Simpson, Esq., L.R.C.S., Surgeon to the Workhouse; (VII.)—Wm. Bates, Esq., B.A., M.R.C.S., Surgeon to the Borough Hospital.

TABLE IX.—WATER: RESULTS OF ANALYSES

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen.
1881.	**CORPORATION WATER.**				
Jan. 10th	5 Court, Cheapside	4°·4	32·28	·143	·016
Feb. 3rd	2 Court, Edmund Street	7°·2	26·90	·222	·047
Mar. 3rd	4 Court, Ladywood Road	6°·1	27·24	·143	·010
April 5th	Rear of 2, Inge Street	6°·1	25·34	·249	·036
May 3rd	Rear of 83, Garbett Street	10°·6	24·22	·140	·030
June 7th	Rear of 107, Aberdeen Street	14°·4	25·96	·112	·009
July 4th	5 Court, Duddeston Row	17°·2	26·44	·167	·026
Aug. 2nd	4 Court, Moseley Road	16°·1	26·06	·141	·023
Sept. 5th	28, Noel Road	13°·3	24·04	·187	·048
Oct. 4th	15 Court, Adam Street	13°·3	24·64	·316	·033
Nov. 7th	1 Court, Moland Street	10°·5	27·80	·374	·057
Dec. 6th	1 Court, Betholom Row	10°·0	32·70	·031	·015
	Average Results ... 1881 ...	10°·8	26·98	·185	·029
	,, ,, ... 1880 ...	10°·3	26·02	·205	·036
	,, ,, ... 1879 ..	8°·2	25·34	·215	·040
	,, ,, ... 1878 ...	10°·8	26·75	·220	·050
	,, ,, ... 1877 ...	10°·9	25·14	·279	·051
	WELL WATERS.				
Jan. 4th	12 and 13, Marshall Street South	...	110·80	...	large
,, ,,	18—21, Marshall Street South	...	83·40	...	very large
,, ,,	88 and 89, Main Street	...	181·40	...	...
,, ,,	4—9, Auckland Road	...	75·60	...	rather large
,, ,,	29, Spring Road	...	109·60	...	,,
,, ,,	9 & 10, Cambridge Crescent, Gough Road (Typhoid)	...	125·60	...	,,
,, 6th	5, Langley Road	...	80·80	...	large
,, ,,	McClelland's Buildings, corner of Villier St. and Wellington St.	...	76·40	...	rather large
,, ,,	3 and 4, Oakley Road	...	101·40	...	large
,, ,,	7 and 8, Oakley Road	...	94·60	...	,,
,, ,,	11 and 12, Oakley Road	...	55·60	...	moderate
,, ,,	14—17, Oakley Road	...	68·60	...	very large
,, 18th	70—74, Hockley Hill	...	176·80	...	,,
,, ,,	75—81, Hockley Hill	...	154·40	...	...
,, ,,	55 and 56, Park Road	...	157·40	...	...
,, ,,	Gofton Cottages, Lodge Road	...	53·20	...	moderate
,, ,,	23 and 25, Summer Road	...	88·60	...	,,
,, ,,	16—18, Islington Row	...	141·60	...	,,
,, 24th	129—133, Sandy Lane	...	76·80	...	...
,, ,,	79 and 80, Coventry Road	...	109·40	...	very large
,, ,,	88 and 89, Coventry Road	...	104·40	...	large
,, ,,	76 and 78, Sampson Road	...	113·20	...	very large
,, ,,	8—18, Henley Street	...	54·60	...	,,
,, ,,	1 and 2, Clermont Villas, Langley Road	...	105·60	...	rather large
,, 28th	107—113, Charles Arthur St. (Diarrhœa)	...	178·80	...	very large
,, ,,	1—6, Carter's Buildings, Long Acre	...	95·40	...	...

EXPRESSED IN PARTS PER 100,000.

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contamination. Estimated.	Chlorine.	Hardness.			REMARKS.
					Temporary.	Permanent.	Total.	
·003	·231	·249	2010	1·4	9°·7	10°·2	19°·9	Bright
·004	·308	·358	2790	2·0	9°·6	7°·0	16°·6	Slightly turbid, faint greenish yellow
·002	·363	·374	3320	0·7	9°·0	6°·3	15°·3	Bright, yellowish green
·003	·187	·225	1570	1·4	8°·0	6°·7	14°·7	Turbid, greenish yellow
·003	·330	·362	3000	2·1	6°·0	6°·4	12°·4	Turbid, greenish
·003	·264	·275	2340	1·7	5°·5	8°·4	13°·9	Slightly turbid, greenish
·003	·198	·226	1680	1·7	11°·6	5°·9	17°·5	Slightly turbid, greenish yellow
·003	·242	·267	2120	2·1	5°·9	9°·6	15°·5	Slightly turbid, faint greenish yellow.
·002	·286	·335	2550	2·0	4°·9	7°·7	12°·6	Turbid, greenish yellow
·003	·132	·167	1020	1·7	5°·1	7°·9	13°·0	Very turbid, greenish yellow
·004	·264	·324	2340	2·0	6°·7	8°·9	15°·6	Turbid, greenish
·001	·220	·235	1880	1·6	8°·9	8°·6	17°·5	Clear
·003	·252	·283	2220	1·7	7°·6	7°·8	15°·4	
·003	·279	·317	2470	1·7	7°·7	7°·0	14°·7	
·004	·236	·279	2070	1·8	8°·9	6°·7	15°·6	
·003	·217	·269	1870	1·8	9°·2	8°·2	17°·4	
·002	·261	·313	1690	1·6	7°·2	8°·3	15°·5	
·010	4·73	4·738	47060	6·6	...	...	...	Clear
·005	2·31	2·314	22820	15·0	...	...	...	Clear
·270	9·18	9·402	93700	15·3	...	...	...	Clear
·005	3·41	3·414	33820	8·0	...	...	...	Clear
·004	2·86	2·863	28310	7·0	...	...	...	Clear
·003	4·18	4·182	41500	7·2	...	...	...	Clear
·006	·66	·665	6330	3·8	...	...	...	Clear
·004	2·09	2·093	20610	5·7	...	...	...	Clear
·005	2·31	2·314	22820	7·0	...	...	...	Clear
·003	4·73	4·732	47000	4·5	...	...	...	Clear
·003	·44	·442	4100	2·7	...	...	...	Clear
·006	2·53	2·535	25030	5·5	...	...	...	Clear
·010	6·05	6·058	60260	14·2	...	...	...	Clear
·480	7·15	7·545	75130	14·8	...	...	...	Clear
·025	8·80	8·820	87900	18·0	...	...	...	Turbid, with very many large floating particles
·003	1·32	1·322	12900	3·1	...	...	...	Clear
·005	3·74	3·744	37120	7·8	...	...	...	Clear
·002	3·85	3·851	38190	15·7	...	...	...	Slightly turbid
·320	·44	·703	6710	7·4	...	...	...	Very turbid
·006	3·96	3·965	39330	8·5	...	...	...	Clear
·003	1·76	1·762	17300	7·3	...	...	...	Clear
·007	1·54	1·546	15140	6·1	...	...	...	Clear
·003	1·98	1·982	19500	2·1	...	...	...	Clear
·007	5·06	5·065	50320	7·1	...	...	...	Clear
·004	9·35	9·353	93210	17·5	...	...	...	Clear
1·800	·33	1·813	17810	21·3	...	...	...	Clear

TABLE IX.—

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen
1881.	**WELL WATERS—(continued).**				
Jan. 28th	7—12, Carter's Buildings, Long Acre (Measles)	...	113·40	...	...
,, ,,	Dwelling-houses occupied by Kent, Bennett, Burton, Watts, Mills, Garden Walk, Long Acre (Scarlet Fever)	...	152·20	...	very large
,, ,,	121 and 122, Great Lister Street ...	...	169·60	...	excessive
,, ,,	10 Court, Scholefield St. (Whooping Cough)...	...	81·60	...	large
Feb. 1st	1—6, Marroway Street (Diarrhœa)	...	92·80	...	,,
,, ,,	Summers Buildings, Cape Street ...	...	48·40	...	very large
,, ,,	Cambridge Cottage, Cape Street ...	...	99·40	...	rather large
,, ,,	Prince of Wales' Terrace, Heath St.	...	261·60	...	...
,, ,,	182 and 183, Bromsgrove Street ...	...	111·20	...	...
,, ,,	7 Court, and 87, Moseley St. (Whooping Cough)	...	219·60	...	...
,, 8th	4 Court, Mount Pleasant, Coventry Road	...	72·80	...	small
,, ,,	5 Court, Mount Pleasant, Coventry Road	...	72·80	...	,,
,, ,,	30 & 31, Mount Pleasant, Coventry Road	...	79·40	...	moderate
,, ,,	74—77, Miles Street	...	101·20	...	...
,, ,,	79 and 80, Vauxhall Road............	...	141·40	...	rather large
,, ,,	158, Vauxhall Road.....................	...	265·60	...	...
,, 11th	9 and 11, All Saints' Street	...	41·80	...	moderate
,, ,,	205 and 206, Miller Street............	...	200·40	...	...
,, ,,	204 & 205, Park Rd., Hockley (Whooping Cough)	...	109·40	...	...
,, ,,	18 Ct., Rea St., (Whooping Cough)	...	231·20	...	...
,, ,,	89 and 90, Nelson St. South (Scarlet Fever)	...	193·60	...	...
,, ,,	7 Court, Macdonald Street, and 12, Court, Lower Hospital Street (Diarrhœa).........................	...	159·60	...	large
,, 15th	67 and 68, Long Street	...	138·80	...	very large
,, ,,	69 and 70, Long Street	...	56·40	...	large
,, ,,	73 and 74, Long Street	...	137·40	...	moderate
,, ,,	38 and 39, Priestley Road...........	...	79·20	...	,,
,, ,,	Ampton Road Schools	...	38·60	...	rather large
,, ,,	3 Court, Great Colmore Street......	...	112·60	...	,,
,, 18th	5, Grange Road	...	80·80	...	,,
,, ,,	House occupied by Alleley, and void house, Green Lane	...	87·40	...	...
,, ,,	Houses occupied by Reeve and Jones, Green Lane	...	84·40	...	...
,, ,,	Houses occupied by Larges and Burton, Green Lane...............	...	77·20	...	...
,, ,,	115 and 116, Emily Street	...	66·60	...	moderate
,, ,,	121—131, Emily Street...............	...	129·60	...	very large
,, 24th	168 and 169, Cattell Road...........	...	122·60	...	,,
,, ,,	170 and 171, Cattell Road...........	...	115·60	...	large

(continued).

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contamination, Estimated	Chlorine.	Hardness.			REMARKS.
					Temporary.	Permanent.	Total.	
2·800	·11	2·410	23780	27·6	...	...	...	Clear
·010	7·26	7·268	72360	12·0	...	...	...	Clear
·009	9·02	9·027	89950	15·1	...	...	...	Muddy, brown
·004	2·86	2·863	28310	7·0	...	...	...	Clear
·007	1·54	1·545	15130	7·6	...	...	...	Clear
·007	1·98	1·985	19530	3·5	...	...	...	Clear
·007	4·40	4·405	43730	11·0	...	...	...	Clear
·320	3·30	3·563	35310	10·7	...	...	...	Clear
1·500	7·15	8·380	83480	35·1	...	...	...	Clear
1·000	4·84	5·663	56310	16·5	...	...	...	Clear
·006	2·09	2·095	20630	5·4	...	...	...	Clear
·005	2·75	2·754	27220	6·3	...	...	...	Clear
·005	4·18	4·184	41520	9·1	...	...	...	Clear
·036	6·93	6·955	69230	7·8	...	...	...	Clear
·010	12·32	12·328	122960	10·1	...	...	..	Clear
·800	1·65	2·310	22780	34·7	...	...	...	Very turbid, brown
·004	·77	·773	7410	3·1	...	...	...	Clear
·400	8·25	8·580	85480	26·0	...	...	...	Clear
·275	3·85	4·076	40440	12·0	...	...	...	Clear
·360	2·97	3·266	32340	17·8	...	...	...	Clear
·090	6·60	6·674	66420	17·9	...	...	...	Clear
·004	2·86	2·863	28310	19·6	...	...	...	Clear
·009	4·62	4·627	45950	15·2	...	..	...	Clear
·006	1·65	1·655	16230	3·5	...	...	...	Clear
·003	4·40	4·402	43700	11·1	...	...	...	Clear
·003	2·20	2·202	21700	8·5	...	...	...	Clear
·008	2·31	2·316	22840	3·8	...	...	...	Clear.
·006	4·95	4·955	49230	15·0	...	...	...	Clear
·005	3·74	3·744	37120	7·6	...	...	...	Clear
·070	1·10	1·158	11260	11·7	...	...	...	Clear
1·400	2·64	3·793	37610	7·2	...	...	...	Clear
·310	2·20	2·455	24230	5·7	...	...	...	Clear
·003	1·10	1·102	10700	2·1	...	...	...	Clear
·003	3·52	2·522	34900	7·3	...	...	...	Clear
·015	5·50	5·513	54810	12·0	...	...	...	Clear
·010	5·61	5·618	55860	9·6	...	...	...	Clear

TABLE IX.—

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen.
1881.	**WELL WATERS**—(continued.)				
Feb. 24th	172 and 173, Cattell Road	...	117·80	...	...
,, ,,	19—23, Mount Pleasant, Coventry Road	...	68·63	...	moderate
,, ,,	House occupied by Mr. Gilmour, Stanmore Road	...	36·40	...	rather large
,, ,,	442, Coventry Road (Diarrhœa) ...	...	147·60	...	...
Mar. 1st	Yard at Back 33, Ladywood Road	...	138·60	...	...
,, ,,	65 and 66, Ladywood Road	...	98·60	...	large
,, ,,	14 and 15, Tillingham Street	...	173·80	...	very large
,, ,,	75 and 76, Long Street	...	145·40	...	,,
,, ,,	77 and 78, Long Street	...	198·40	...	,,
,, ,,	79 and 80, Long Street	...	135·60	...	,,
,, 10th	25 Court, Barford Street	...	320·60	...	...
,, ,,	Bath Terrace, Lower Essex Street	...	198·60	...	...
,, ,,	1 Court, Benacre Street...............	...	182·80	...	...
,, ,,	1—5, Cooksey Avenue, Cooksey Rd.	.	145·40	...	very large
,, ,,	1—7, Short Row, Bacchus Road ...	...	82·40	...	rather large
,, ,,	1 and 2, Bird Lane (Typhoid)	...	139·60	...	large
,, 16th	88, Dymoke Street, and 51 to 55, Emily Street	...	180·60	...	rather large
,, ,,	10—12, King Street	...	145·60	...	...
,, ,,	Beta Place, Larches Street	...	155 80	...	excessive
,, ,,	141 and 142, Larches Street.........	...	97·40	...	very large
,, ,,	143 and 144, Larches Street.........	...	116·40	...	large
,, ,,	8—10, Warwick Street (Diarrhœa)	...	235·60	...	,,
,, 19th	117 and 118, Moseley Road	...	126·60	...	,,
,, ,,	56 and 57, Stratford Road............	...	99·60	...	...
,, ,,	58, Stratford Road	...	117·80	...	large
,, 18th	94—97, Francis Street	...	115·40	...	very large
,, ,,	7 Court, Vauxhall Road...............	...	116·40	...	moderate
,, ,,	21 and 22, Scholefield Street, and 17—19, Oliver Street	...	94·60	...	,,
,, 24th	2 & 3, Howard Place, Dolobran Rd.	...	71·60	...	...
,, ,,	2 & 3, Arthur Place, Dolobran Road	...	65·60	...	very large
,, ,,	8 & 9, Arthur Place, Dolobran Road	...	70·80	...	large
,, ,,	59, Stratford Road	...	71·40	...	,,
,, ,,	1, Princess Road, and 95, Belgrave Road	...	144·20	...	excessive
,, ,,	Blakemore Terrace, Bell Barn Road	...	134·60	...	...
,, 29th	4 Court, Osler Street	...	101·60	...	large
,, ,,	Houses occupied by Gilmour and Stanley, Stanmore Road	...	33·60	...	moderate
,, ,,	Norwood Terrace, Bedford Road (Whooping Cough)	...	138·80	...	large
,, ,,	11 Court, William Edward Street (Whooping Cough)	...	184·40	...	...
,, ,,	11 and 12 Courts, Charles Henry Street (Whooping Cough)	...	161·40	...	...

(*continued*).

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contamination. Estimated	Chlorine.	Hardness.			REMARKS.
					Temporary.	Permanent.	Total.	
·022	6·38	6·398	63660	9·9	...	...	...	Clear
·003	1·32	1·322	12900	4·7	...	..	...	Clear
·007	·11	·115	830	1·5	...	...	...	Muddy, dirty yellow, residue brown
·600	5·94	6·434	64020	11·8	...	...	...	Clear
·280	5·50	5·730	56980	15·5	...	...	...	Turbid
·008	4·29	4·296	42640	5·1	...	...	...	Clear
·003	4·40	4·402	43700	10·1	...	...	...	Clear
·005	5·94	5·944	59120	13·5	...	...	...	Clear
·004	10·12	10·123	100910	15·0	...	...	...	Clear
·006	5·50	5·505	54730	11·3	...	...	...	Clear
1·250	2·20	3·229	31970	40·8	...	...	...	Clear
·090	7·92	7·994	79620	17·5	...	...	...	Clear
·019	5·94	5·955	59230	15·6	...	...	...	Clear
·005	3·63	3·634	36020	14·0	...	...	...	Clear
·005	3·19	3·194	31620	5·8	...	...	...	Clear
·006	3·08	3·085	30520	5·7	...	...	...	Clear, residue brown
·003	1·76	1·762	17300	15·0	...	...	...	Clear
·150	6·16	6·283	62510	14·2	...	...	...	Clear
·007	3·30	3·305	32730	14·6	...	...	...	Clear
·006	3·74	3·745	37130	5·8	...	...	...	Clear
·002	4·18	4·181	41490	9·1	...	...	...	Clear
·003	7·48	7·482	74500	26·0	...	...	...	Clear
·003	1·54	1·542	15100	8·8	...	...	...	Clear
2·050	2·97	4·651	46190	14·0	...	...	...	Turbid, slightly yellow, many large suspended particles
·006	4·62	4·624	45920	10·2	...	...	...	Clear
·007	4·84	4·845	48130	10·2	...	...	...	Clear
·003	3·41	3·412	33800	13·3	...	...	...	Clear
·006	5·28	5·285	52530	10·6	...	...	...	Clear
·120	2·31	2·409	23770	3·2	...	...	...	Clear
·003	2·97	2·972	29400	3·9	...	...	...	Clear
·018	2·31	2·325	22930	6·3	...	...	...	Clear
·005	2·97	2·974	29420	7·5	...	...	...	Clear
·001	4·51	4·511	44890	3·5	...	...	...	Clear
·600	5·06	5·554	55220	9·7	...	...	...	Clear
·011	5·72	5·729	56970	11·4	...	...	...	Clear
·004	·77	·773	7410	1·6	...	...	...	Clear
·003	5·61	5·612	55800	10·5	...	...	...	Clear
·500	3·96	4·370	43380	20·7	...	...	...	Clear
·350	5·61	5·898	58660	12·5	...	...	...	Clear

TABLE IX.—

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen.
1881.	WELL WATERS—(continued.)				
Mar. 29th	Mountfield Cottages, Mountfield Rd.	...	137·60	...	large
April 1st	Chapel Terrace, Bell Barn Road ...	...	64·60	...	,,
,, ,,	87 and 89, Belgrave Road	...	291·00	...	excessive
,, 4th	35 and 36 Courts, Hope Street ...	...	197·60	...	...
,, ,,	Back 33 Summer Road	...	103·80	...	...
,, ,,	Back 43 and 45 ditto	...	89·40	...	...
,, ,,	Top of Summer Grove, ditto.........	...	114·40	...	large
,, ,,	Top of Holly Grove, ditto............	...	177·60	...	very large
,, 9th	119 and 120, Duddeston Mill Road	...	149·60	...	,,
,, ,,	Loxton's Buildings, Dollman Street	...	71·60	...	large
,, ,,	22 Court, Inkerman Street	...	126·80	...	very large
,, ,,	169, Inkerman Street..................	...	150·00	...	rather large
,, 11th	Back 11 and 12, Great Colmore Street (top Pump)	...	139·40	...	very large
,, ,,	Back 11 and 12, Great Colmore Street (bottom Pump)	...	147·40	...	...
,, ,,	8—12, Spring Vale.....................	...	185·60	...	very large
,, 19th	1 Court, Derby Street	...	313·60	...	...
,, ,,	13 Court, Allison Street	...	49·60	...	...
,, ,,	1 Court, Dart Street	...	191·80	...	very large
,, ,,	2 Court, Saltley Street (Diarrhœa)	...	124·40	...	large
,, 20th	1, Sampson Road	...	144·40	...	very large
,, ,,	3 and 5, Sampson Road...............	...	127·60	...	large
,, 25th	124—126, New Spring Street	...	98·60	...	,,
,, ,,	127—132, New Spring Street	...	91·60	...	very large
,, ,,	20 Court, Smith Street	...	79·80	...	large
,, ,,	1—3, Clissold Street	...	113·40	...	rather large
,, ,,	1—7, Gibson's Cottages, 39 Court, Lower Camden Street	...	118·40	...	...
,, ,,	148—152, Lee Bank Road	...	106·60	...	very large
,, 26th	1—7, Short Row, Bacchus Road ...	...	80·04	...	large
,, 28th	33 and 35, Cato Street	...	92·60	...	rather large
,, ,,	34 and 36, Cato Street	...	83·60	...	,,
,, ,,	95 and 97, Cato Street	...	147·30	...	very large
,, ,,	99 to 101, Cato Street	...	125·40	...	large
,, ,,	Springfield Terrace, Spring Street..	...	84·40	...	,,
,, ,,	227—229, Bellbarn Road	...	41·60	...	small
May 2nd	105, Gough Road (Scarlet Fever)...	...	74·60	...	large
,, ,,	Spring Walk, Gough Road	...	121·60	...	...
,, ,,	Mount Pleasant Grove, Mount Pleasant, Coventry Road	...	75·80	... ...	very large
,, ,,	304 and 305, Green Lane	...	79·40	...	,,
,, ,,	Whitmore Place, Whitmore Road..	...	100·40	...	large
,, ,,	Packington Place, Whitmore Road	...	115·60	...	rather large
,, 5th	15, Reservoir Road...	...	32·60	...	very large
,, ,,	6 and 7 Courts, Irving Street	...	111·60	...	large
,, ,,	26 and 27, Irving Street	...	121·80	...	,,

(continued.)

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contamination, Estimated	Chlorine.	Hardness.			REMARKS.
					Temporary.	Permanent.	Total.	
·003	2·75	2·752	27120	9·8	...	...	...	Clear
·003	2·20	2·202	21730	5·5	...	...	...	Clear
·006	12·65	12·655	126230	20·5	...	...	...	Clear
·800	8·58	9·240	92180	17·3	...	...	...	Clear
·720	4·84	5·433	54010	8·6	...	...	...	Clear
·650	4·18	4·715	46830	6·6	...	...	..	Clear
·007	6·16	6·165	61330	7·3	...	...	...	Clear
·005	6·82	6·824	67920	8·9	...	...	...	Clear
·002	8·14	8·141	81090	12·1	...	...	...	Clear
·002	1·54	1·541	15090	3·0	...	...	...	Clear
·003	5·72	5·722	56900	10·6	...	...	...	Clear
·002	5·94	5·941	59090	14·2	...	...	...	Clear
·007	7·70	7·706	76740	17·8	...	...	...	Clear
·240	8·58	8·777	87450	19·0	...	...	...	Clear
·002	3·74	3·741	37090	23·4	...	...	...	Clear
·030	9·13	9·155	91230	31·8	...	...	...	Clear
·025	1·43	1·450	14180	4·8	...	...	...	Clear
·005	6·38	6·384	63520	26·5	...	...	...	Slightly turbid
·002	4·18	4·181	41490	14·0	...	...	...	Clear
·002	·99	·991	9590	12·3	...	...	...	Clear
·002	2·75	2·751	27190	11·2	...	...	...	Clear
·004	4·84	4·834	48110	9·3	...	...	...	Clear
·007	4·62	4·625	45930	5·6	...	...	...	Clear
·006	2·97	2·975	29430	8·6	...	...	...	Clear
·002	5·28	5·281	52490	13·2	...	...	...	Clear
·019	6·16	6·175	61430	7·8	...	...	...	Clear
·003	4·80	4·824	48100	10·2	...	...	...	Clear
·004	3·921	3·924	38920	6·0	...	...	...	Bright ; the residue at first is white, subsequently dark brown, with floating flocculi
·005	5·830	5·834	58020	9·5	...	...	...	Clear
·004	3·52	3·523	34910	9·7	...	...	...	Clear
·002	7·26	7·261	72290	10·2	...	...	...	Clear
·002	6·05	6·851	60190	10·4	...	...	...	Clear
·002	4·29	4·291	42590	8·8	...	...	...	Clear
·003	·33	·332	3000	2·8	...	...	...	Clear
·003	1·87	1·872	18400	7·2	...	...	...	Clear
·210	3·85	4·023	39910	5·9	...	...	...	Clear
·003	1·21	1·212	11800	5·0	...	...	. .	Clear
·009	3·08	3·087	30550	7·8	...	...	...	Clear
·012	2·75	2·760	27280	7·5	...	...	...	Clear
·005	1·76	1·764	17320	9·7	...	...	...	Clear
·013	·33	·341	3090	2·9	...	...	...	Turbid, brownish
·004	2·75	2·753	27210	25·4	...	...	...	Clear
·003	5·50	5·502	54700	19·2	...	...	...	Clear

TABLE IX.—

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen.
1881.	**WELL WATERS**–(continued).				
May 5th	26, Duchess Road	...	77·40	...	large
,, ,,	182, Hagley Road	...	62·40	...	rather large
,, ,,	Richmond Hill Farm, Richmond Hill (Diarrhœa)	...	31·60	...	moderate
,, 9th	Oak Terrace, Icknield Port Road	...	76·60	...	rather small
,, ,,	Park Place, Stour Street	...	110·80	...	very large
,, ,,	11 Court, William Edward Street	...	184·40	...	...
,, ,,	Spring Grove, Heath Street	...	95·60	...	...
,, ,,	4 Court, Angelina Street	...	124·40	...	large
,, 10th	15 and 16, Skinner Street	...	170·60	...	...
,, 17th	7 Court, Cato Street	...	58·60	...	small
,, ,,	Back 5 and 6, Erasmus Road	...	69·60	...	rather large
,, ,,	8 Court, Erasmus Road	...	117·80	...	very large
,, ,,	9 Court, Erasmus Road	...	105·40	...	,,
,, ,,	49 and 50, Vauxhall Road	...	166·40	...	rather large
,, ,,	79 and 80, Vauxhall Road	...	132·36	...	large
,, 18th	1—7, Short Row, Bacchus Road	...	79·40	...	·343
,, 20th	171 and 172, Ledsam Street	...	72·60	...	,,
,, ,,	144 and 146, Great Tindal Street, and 59, Johnstone Street	...	63·60	...	rather large
,, ,,	Paris Place, Dawson Street (Scarlet Fever)	...	69·80	...	,,
,, ,,	Peel Cottage, Baker Street	...	192·40	...	excessive
,, ,,	32, Albert Street, Small Heath	...	142·40	...	...
,, ,,	50 & 51, Albert Street, Small Heath	...	89·60	...	large
,, 26th	Railway Terrace, Canal Side, Lodge Road	...	142·60	...	...
,, ,,	6—11, George Street West	...	85·60	...	rather small
,, ,,	12—17, George Street West	...	109·80	...	,,
,, ,,	87 and 89, and Highland Terrace, Dolobran Road	...	73·20	...	rather large
,, ,,	Oxford Terrace, College Street	...	138·40	...	...
June 2nd	91 and 93, Dolobran Road	...	57·60	...	moderate
,, ,,	4 Court, Parker St. (Scarlet Fever)	...	33·60	...	rather large
,, ,,	302 and 303, Green Lane	...	55·60	...	...
,, ,,	282 and 284, Lawley Street	...	219·80	...	...
,, ,,	Rose Cottages, Rutland Road	...	81·40	...	very large
,, ,,	Houses occupied by Smith & Bates, Ashford's Buildings, Rutland Rd.	...	100·40	...	...
,, ,,	Houses occupied by Langford and Brooks, Ashford's Buildings, Rutland Road	...	95·60	...	...
,, 7th	70 and 71, Sherlock Street	...	144·00	...	excessive
,, ,,	51—55, Saint Luke's Road	...	199·63	...	...
,, ,,	205—208, Bristol Street	...	163·80	...	...
,, ,,	Penelope Place, Bristol Street	...	119·40	...	...
,, ,,	358 and 359, Summer Lane	...	210·40	...	...
,, ,,	67 and 68, Summer Hill	...	47·60	...	very large

(continued.)

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contamination. Estimated.	Chlorine.	Hardness.			REMARKS.
					Temporary.	Permanent.	Total.	
·006	1·98	1·985	19530	5·9	...	...	...	Clear
·005	2·09	2·094	20620	5·3	...	...	...	Clear
·003	·88	·882	8500	2·0	...	...	...	Clear
·003	3·85	3·852	38200	9·6	...	...	...	Clear
·003	2·09	2·092	20600	6·0	...	...	...	Clear
·200	2·31	2·475	24430	19·5	...	...	...	Clear
·018	4·73	4·745	47130	9·0	...	...	...	Clear
·002	1·98	1·981	19490	12·5	...	...	...	Clear
·210	5·72	5·893	58610	20·4	...	...	...	Clear
·003	1·98	1·988	19500	7·7	...	...	...	Clear
·004	2·42	2·423	23910	5·7	...	...	...	Clear
·002	4·62	4·621	46999	5·9	...	...	...	Clear
·010	5·50	5·508	54760	10·9	...	...	...	Clear
·006	8·80	8·805	87730	27·9	...	...	...	Clear
·005	7·92	7·924	78920	10·4	...	...	...	Slightly turbid ; greenish
·004	4·43	4·480	44052	6·2	...	...	...	Turbid ; slightly greenish
·003	5·17	5·172	51400	10·6	...	...	...	Clear
·003	·22	·222	1900	8·0	...	...	...	Clear
·002	1·54	1·541	15190	6·6	...	...	...	Clear
·005	7·70	7·704	76720	13·5	...	...	...	Turbid
·350	5·72	6·007	59750	10·8	...	...	...	Clear
·003	4·51	4·512	44800	12·5	...	...	...	Turbid, with many small suspended particles.
·090	1·43	1·504	14720	31·3	...	...	...	Turbid, brownish
·003	1·98	1·982	19500	22·5	...	...	...	Clear
·003	5·72	5·722	56900	15·6	...	...	...	Clear
·003	1·76	1·762	17300	5·4	...	...	...	Clear
·140	6·60	6·715	66830	11·1	...	...	...	Clear
·004	·33	·333	3010	1·9	...	...	...	Clear
·002	1·54	1·542	15090	4·8	...	...	...	Clear
·100	1·98	2·062	20300	4·5	...	...	...	Clear
·125	4·62	4·729	46970	28·1	...	...	...	Clear
·005	1·32	1·324	12920	6·0	...	...	...	Clear
·300	3·41	3·657	36250	11·7	...	...	...	Clear
·325	3·85	4·118	40860	9·5	...	...	...	Clear
·003	trace	...	0	22·4	...	...	...	Clear
·220	8·14	8·32	82890	29·5	...	...	...	Clear
·210	8·03	8·203	81710	25·4	...	...	...	Clear
·017	5·17	5·184	51520	12·3	...	...	...	Clear
·090	7·15	7·224	71920	29·9	...	...	...	Clear
·004	1·10	1·103	10710	3·8	...	...	...	Clear

TABLE IX.—

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen
1881.	**WELL WATERS**—(continued.)				
June 10th	172 and 173, Watery Lane	...	154·60	...	...
,, ,,	195 and 196, High Street, Deritend	...	213·60	...	...
,, ,,	6 Court, Long Street	...	196·80	...	very large
,, ,,	19 and 20, Long Street	...	71·40	...	,,
,, ,,	23, Long Street	...	204·40	...	...
,, ,,	39 and 43, Auckland Road	...	111·60	...	large
,, 14th	George Edward Place, Muntz Street	...	108·40	...	rather large
,, ,,	Laburnum Terrace, Grange Road...	...	83·60	...	large
,, ,,	6, Dawson Street	...	146·40	...	very large
,, ,,	9 and 10, Dawson Street	...	142·80	...	,,
,, ,,	61 Court, Farm Street, and back 51, Wheeler Street..................	...	44·40	...	...
,, ,,	75 and 76, Great King Street	...	53·40	...	rather small
,, 17th	109, Summer Road......................	...	117·40	...	...
,, ,,	63 and 65, Pershore Road............	...	106·60	...	large
,, 21st	Back 8, Parliament Street	...	104·40	...	...
,, ,,	8—11, Mount Pleasant, Coventry Rd	...	56·40	...	small
,, 24th	14 & 15, Mount Pl'sant, Coventry Rd.	...	60·60	...	,,
,, ,,	92 and 94, Bordesley Park Road...	...	63·40	...	very large
,, 17th	Stafford Place, Icknield Port Road	...	42·40	...	rather small
,, ,,	Hereford Place, Icknield Port Road	...	59·80	...	,,
,, ,,	Houses occupied by Wright and Holton, Lee's Buildings, Cape St.	...	98·40	...	very large
,, ,,	Houses occupied by Crossley and Lamb, Lee's Buildings, Cape St.	...	150·40	...	...
,, 20th	203 and 204, Broad Street	. .	66·40	...	moderate
,, ,,	7 Court, Bishop Street (Whooping Cough)	...	257·60	...	...
,, 21st	452 and 453, Coventry Road.........	...	84·40	...	moderate
,, ,,	Back 3, Parliament Street	...	86·40	...	...
,, ,,	5 and 6, Parliament Street	...	126·40	...	very large
,, 24th	98, Bordesley Park Road	...	74·80	...	large
,, ,,	2 Court, Upper Gough Street	...	134·40	...	...
,, ,,	Water supplied to Nos. 7, 8, and 9, Commercial Street (through tank)	...	180·40	...	...
,, ,,	181 and 182, Cooksey Road	...	81·40	...	large
,, ,,	183 and 184, Cooksey Road	...	90·60	...	very large
,, ,,	185 and 186, Cooksey Road	...	99·40	...	,,
,, ,,	221, Cooksey Road......................	...	64·80	...	large
,, ,,	222, Cooksey Road	...	55·40	...	...
,, ,,	38 and 39, Herbert Road	...	124·40	...	moderate
,, 30th	34, Geach Street..........................	...	252·40	...	...
,, ,,	2 and 3, Bristol Road..................	...	86·60	...	moderate
,, ,,	15 and 16, Bristol Road...............	...	122·40	...	large
,, ,,	243 & 244, Great Colmore St. (Small-pox)	...	158·80	...	,,
,, ,,	40 Court, Great Russell Street......	...	230·40	...	...
,, ,,	41 and 43, Pershore Road............	...	117·40	...	moderate
July 4th	141, Sandy Lane..........................	...	138·80	...	...

(continued).

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contamination, Estimated	Chlorine.	Hardness.			REMARKS.
					Temporary.	Permanent.	Total.	
·390	5·61	5·931	58990	18·2	...	...	...	Clear
·013	3·52	3·531	34990	29·1	...	...	...	Turbid, slightly green ; many large floating particles
·003	7·70	7·702	76700	18·1	...	...	...	Clear
·002	2·42	2·421	23890	6 4	...	...	...	Clear
·095	11·66	11·739	117070	7·0	...	...	...	Clear
·003	4·62	4·622	45900	7·9	...	...	...	Clear
·003	4·07	4·072	40400	8·1	...	...	...	Clear
·012	3·63	3·640	36080	6·5	...	...	...	Clear
·012	4·73	4·740	47080	12·5	...	...	...	Clear
·010	4·29	4·298	42660	11·3	...	...	...	Clear
2·000	·66	2·300	22680	6·1	...	...	...	Clear
·006	·99	·995	9630	8·0	...	...	...	Clear
·030	5·28	5·305	52730	7·2	...	...	...	Clear
·002	4·62	4·621	45990	7·1	...	...	...	Clear
·020	4·18	4·196	41640	7·1	...	...	...	Clear
·002	1·87	1·871	18390	4·4	...	...	...	Clear
·004	1·98	1·983	19510	4·6	...	...	...	Clear
·003	1·32	1·322	12900	3·1	...	...	...	Clear
·002	·99	·991	9590	3·6	...	...	...	Clear
·003	·77	·772	7400	13·8	...	...	...	Clear
·005	5·39	5·394	53620	8·2	...	...	...	Clear
·320	7·37	7·633	76010	15·9	...	...	...	Clear
·004	2·64	2·643	26110	8·8	...	...	...	Clear
2·400	2·97	4·940	49080	34·8	...	...	...	Clear
·002	2·64	2·641	26090	6·4	...	...	...	Clear
·510	3·52	3·938	39060	4·1	...	...	...	Clear
·004	5·06	5·063	50310	14·9	...	...	...	Clear
·004	1·10	1·103	10710	4·6	...	...	...	Clear
·425	1·32	1·670	16380	29·5	...	...	...	Clear
1·620	·88	2·197	21650	59·1	...	...	...	Clear
·006	2·75	2·755	27240	4·8	...	...	...	
·006	3·63	3·635	36030	5·4	...	...	...	Clear
·006	3·96	3·965	39330	6·2	...	...	...	Clear
·007	2·20	2·205	21730	4·5	...	...	...	Clear
·025	·66	·680	6480	4·7	...	...	...	Clear
·004	5·17	5·173	51410	11·0	...	...	...	Clear
·025	3·96	3·980	39480	21·6	...	...	...	Clear
·001	·22	·221	1890	9·1	...	...	...	Clear
·00	3·52	3·520	34880	6·5	...	...	...	Clear
·002	9·57	9·571	95390	16·5	...	...	...	Clear
2·000	13·64	15·280	152480	21·5	...	...	...	Clear
·006	4·40	4·405	43730	12·1	...	...	...	Clear
·025	7·15	7·170	71380	10·5	...	...	...	Clear

TABLE IX.—

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen.
1881.	**WELL WATERS**—(continued.)				
July 4th	5 and 6, Larches Street	...	107·40	...	large
,, ,,	7 and 8, Larches Street	...	165·40	...	...
,, 5th	1 & 2, Hagley Terrace, Hagley Rd.	...	47·40	...	moderate
,, ,,	3 & 4, Hagley Terrace, Hagley Rd.	...	45·60	...	,,
,, ,,	5 & 6, Hagley Terrace, Hagley Rd.	...	66·40	...	,,
,, 8th	242—245, New John Street West..	...	92·40	...	moderate
,, ,,	54 and 55, Soho Road	...	118·60	...	,,
,, ,,	Williams' Buildings, back Bordesley Terrace, Bordesley Green	...	161·40	...	very excessive
,, ,,	98—101, Bordesley Green	...	158·80	...	large
,, ,,	178 and 179, Cattell Road	...	107·40	...	,,
,, ,,	12 and 13, Cherrywood Lane	...	87·40	...	moderate
,, 11th	103 and 105, Muntz Street	...	112·00	...	large
,, 13th	32 and 33, Mole Street	...	121·60	...	...
,, ,,	61 and 63, Highgate Lane	...	158·40	...	large
,, ,,	47 and 49, Sampson Road North (Scarlet Fever)	...	112·40	...	rather large
,, ,,	186 and 187, Stratford Road	...	58·80	...	moderate
,, ,,	83 and 84, Bristol Road	...	96·40	...	rather large
,, ,,	4 and 5, Spring Vale	...	164·40	...	very large
,, 19th	68, Wheeler Street	...	168·40	...	,,
,, ,,	16 and 18, Cowper Street	...	116·60	...	...
,, ,,	139, Great King Street	...	153·40	...	...
,, ,,	8 and 9, Lennox Street	...	91·80	...	large
,, ,,	8 Court, Navigation Street	...	170·40	...	moderate
,, ,,	38 Court, Sherlock Street	...	148·40	...	...
,, 22nd	50 and 51, Cattles Grove (Whooping Cough)	...	94·40	...	very large
,, ,,	91—94, Cattles Grove (Whooping Cough)	...	103·60	...	,,
,, ,,	39—42, Bloomsbury Street	...	147·40	...	...
,, ,,	13 Court, and No. 137, Leopold St.	...	125·80	...	rather large
,, ,,	364 and 365, Moseley Road	...	142·40	...	very large
,, ,,	Thompson's Buildings, Church Road, Nechells	...	216·40	...	,,
,, 28th	4 Court, Parker Street (Scarlet Fever)	...	42·00	...	small
,, ,,	89 & 91, Alston Street (Diphtheria)	...	166·00	...	very large
Aug. 30th	From Spring at Danford Lane Farm, Golden Hillock Road	...	31·40	...	very excessive
,, ,,	Abbotsford House, Anderton Road	...	38·60	...	...
,, ,,	62 and 64, Saint Mary Street	...	91·40	...	very large
,, ,,	228 and 229, Bristol Street (Typhoid)	...	161·80	...	...
,, ,,	Back 48—51, Guildford St. (Typhoid)	...	178·40	...	...
,, ,,	Paradise Place, Guildford St. (Scarlet Fever)	...	54·40	...	rather large
Sept. 5th	Gem Terrace, Icknield Port Road (English Cholera)	...	106·40	...	...
,, ,,	53 Court, Bellbarn Road	...	138·60	...	...
,, ,,	Back 264—266, Bellbarn Road	...	99·40	...	moderate
,, ,,	Back 198, Heath Street (1st Pump)	...	114·80	...	very large

(*continued*).

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contamination. Estimated	Chlorine.	Hardness.			REMARKS.
					Temporary.	Permanent.	Total.	
·003	3·52	3·522	34900	8·8	...	...	...	Clear
·090	5·72	5·794	57620	9·5	...	...	...	Clear
·004	2·97	2·973	29410	6·1	...	...	...	Clear
·003	2·86	2·862	28300	5·3	...	..	...	Clear
·003	2·86	2·862	28300	6·6	...	...	...	Clear
·003	3·74	3·742	37110	6·1	...	...	...	Bright, with many small suspended particles
·004	2·64	2·643	26110	8·0	...	...	...	Clear
·003	2·52	2·522	24900	13·0	...	...	...	Very turbid; contains many large floating particles
·002	4·40	4·401	43690	14·6	...	...	...	Clear
·008	4·40	4·406	43740	8·2	...	...	...	Slightly turbid
·003	2·20	2·202	21700	6·0	...	...	...	Clear
·002	3·52	3·521	34890	8·6	...	...	...	Very slightly turbid
·035	4·84	4·869	48370	7·1	...	...	...	Clear
·003	3·08	3·082	30500	18·1	...	...	...	Clear
·002	3·74	3·741	37090	6·2	...	...	...	Clear
.003	·22	·221	1990	2·2	...	...	...	Clear
·002	1·43	1·431	13990	2·7	...	...	...	Clear
·003	·66	·662	6300	25·8	...	...	...	Clear
·004	3·74	3·743	37110	12·8	...	...	...	Clear
·290	1·98	2·218	21860	15·5	...	...	...	Clear
·240	3·63	3·827	37950	15·8	...	...	...	Clear
·002	4·51	4·511	44790	12·8	...	...	...	Clear
·002	5·50	5·501	54690	30·3	...	...	...	Clear
·400	4·40	4·730	46980	15·8	...	...	...	Clear
·002	2·64	2·641	26090	6·1	...	...	...	Clear; residue brown
·005	4·51	4·514	44820	8·0	...	...	...	Clear
·090	6·60	6·674	66420	12·1	...	...	...	Turbid
·002	2·42	2·421	23890	13·2	...	...	...	Clear
·003	5·06	5·062	50300	14·2	...	...	...	Clear
·015	trace	·012	0	21·5	...	...	...	Very turbid, yellow; residue brown
·005	1·87	1·874	18420	5·0	...	...	...	
·006	3·96	3·965	39330	7·5	...	...	...	
·004	...	...	0	·8	...	...	...	Clear
·210	1·54	1·713	16810	2·7	...	...	...	Very turbid
·003	3·63	3·632	36000	18·5	...	...	...	Turbid
·120	5·72	5·818	57860	24·0	...	...	...	Clear
·135	·77	·882	8500	7·8	...	...	...	Very slightly turbid
·002	1·32	1·321	12890	4·5	...	...	...	Clear
·015	6·05	6·062	60300	11·4	...	...	...	Clear
6·000	Nil	4·94	49080	29·0	...	...	...	Very turbid odour of sewage
·002	3·63	3·631	35990	10·8	...	...	...	Clear
·015	3·30	3·312	32800	8·6	...	...	...	Clear

TABLE IX.—

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen.
1881.	**WELL WATERS**—(continued.)				
Sept. 5th	Back 198, Heath Street (Scarlet Fever, 2nd Pump)................	...	68·40	...	...
,, ,,	66 and 67, Heath Street	...	82·40	...	moderate
,, 13th	130 and 131, Digbeth.................	...	24·20	...	very large
,, ,,	124, Digbeth	...	266·60	...	..
,, ,,	1, Varna Road..........................	...	113·40	...	large
,, ,,	2 and 3, Varna Road	...	116·80	...	very large
,, ,,	4 and 5, Varna Road	...	160·40	...	...
,, ,,	261—263, Bellbarn Road	...	108·40	...	rather large
,, 22nd	126—129, Watery Lane	...	99·00	...	...
,, ,,	29 Court, Bromsgrove Street	...	209·60	...	...
,, ,,	3 Court, Benacre Street (Scarlet Fever)......	...	154·40	...	...
,, ,,	11 Court, Vere Street (Scarlet Fever)	...	206·80	...	very large
,, ,,	84, Great Barr Street.................	...	322·40	...	excessive
,, 26th	34 and 36, Pershore Road............	...	126·40	...	...
,, ,,	5 Court, Conybere Street (Fever)...	...	184·40	...	large
,, ,,	24 Court, Summer Lane (Diarrhœa)	...	189·60	...	...
,, ,,	107—113, Charles Arthur Street ...	...	210·40	...	large
,, ,,	30 Court, Darwin Street	...	204·80	...	...
,, ,,	202, Darwin Street.....................	...	274·40	...	very large
,, 30th	1 Court, Deritend	...	143·40	...	,,
,, ,,	31 and 32, Lee Crescent	...	58·00	...	,,
,, ,,	38 and 40, Summer Road	...	102·60	...	...
,, ,,	71 and 72, Coventry Road............	...	93·40	...	moderate
,, ,,	77 and 78, Coventry Road	...	68·80	...	,,
,, ,,	1 to 5, Regent Park Terrace, Regent Park Road	...	168·40	...	...
,, ,,	6 to 9, Regent Park Place, Regent Park Road	...	158·40	...	very large
Oct. 6th	63—73, Angelina Street...............	...	188·00	...	large
,, ,,	21—24, Ravenhurst Street	...	147·60	...	...
,, ,,	177, Hagley Road	...	74·40	...	large
,, ,,	178, Hagley Road	...	54·80	...	...
,, ,,	2 and 3, Calthorpe Road	...	44·40	...	small
,, ,,	House occupied by Mr. Wright, Harborne Road............	...	126·40	...	...
,, 12th	Time Works, Barr St. West (Typhoid)	...	56·00	...	very excessive
,, ,,	4 and 5 Courts, Hingeston St. (Diphtheria)	...	76·60	...	rather large
,, ,,	309—311, Heath Street (Diarrhœa)	...	30·40	...	,,
,, ,,	Houses occupied by Mr. Price and Mr. Henley, Rotton Park Road	...	36·80	...	,,
,, ,,	110 and 111, Winson Street	...	59·40	...	...
,, ,,	14 and 15, Green Street (Scarlet Fever)	...	114·40	...	...
,, 19th	62, Wheeley's Road (Scarlet Fever)	...	56·00	...	rather large
,, ,,	Pleasant Place and Hinley Place, Wynn Street	...	87·60	...	,,
,, ,,	Queen's Place, Wynn Street.........	...	135·40	...	small

(continued.)

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contamination, Estimated	Chlorine.	Hardness.			REMARKS.
					Temporary.	Permanent.	Total.	
·125	·22	·323	2910	5·9	...	...	...	Turbid
·004	2·53	2·533	25010	9·6	...	...	...	Clear
·007	·11	·115	830	1·7	...	...	...	Clear
3·200	...	2·635	26030	42·5	...	...	...	Turbid
·003	2·42	2·422	23900	8·7	...	...	...	Clear
·005	2·20	2·204	21720	9·0	...	...	...	Clear
·080	1·43	1·496	14640	11·7	...	...	...	Clear
·001	3·19	3·191	31590	12·8	...	...	...	Clear
·210	·44	·613	5810	7·3	...	...	...	Clear
·900	7·92	8·660	86280	27·0	...	...	...	Clear
·080	5·17	5·236	52040	12·3	...	...	...	Turbid
·003	3·08	3·082	30500	19·4	...	...	...	Clear
·009	4·07	4·078	40460	52·0	...	...	...	Clear
·035	2·97	2·999	29670	11·2	...	...	...	Clear
·001	2·53	2·531	24990	15·8	...	...	...	Clear
1·200	8·58	9·567	95350	19·6	...	...	...	Clear
·007	8·80	8·806	87740	18·5	...	...	...	Clear
2·000	1·98	3·62	35880	17·2	...	...	...	Clear
·002	3·30	3·301	32690	26·7	...	...	...	Clear
·004	1·10	1·103	10710	15·1	...	...	...	Clear
·003	2·53	2·532	25000	6·0	...	...	...	Slightly turbid
·190	2·42	2·576	25440	6·4	...	...	...	Clear
·002	2·75	2·751	27190	7·7	...	...	...	Clear
·002	2·20	2·201	21690	6·0	...	...	...	Clear
·290	7·92	8·158	81260	20·1	...	...	...	Clear
·004	5·72	5·723	56910	17·9	...	...	...	Clear
·003	1·43	1·432	14000	11·0	...	...	...	Clear
·150	5·50	5·623	55910	12·1	...	...	...	Clear
·005	2·75	2·754	27220	5·3	...	...	...	Clear
·120	1·76	1·859	18270	5·0	...	...	...	Clear
·002	·99	·991	9590	3·8	...	...	...	Clear
·045	1·21	1·247	12150	33·5	...	...	...	Turbid
·013	·44	·451	4190	4·5	...	...	...	Turbid, large floating particles, residue brown
·004	2·64	2·643	26110	7·6	...	...	...	Clear
·004	·99	·993	9610	2·7	...	...	...	Slightly turbid
·005	·33	·334	3020	3·5	...	...	...	Turbid, large particles
·700	·44	1·016	9840	6·5	...	...	...	Very slightly turbid
·850	3·30	4·000	39680	10·6	...	...	...	Clear
·006	·99	·995	9630	1·9	...	...	...	Clear
·003	3·41	3·412	33800	11·3	...	...	...	Clear
·003	6·60	6·602	65700	15·6	...	...	...	Clear

TABLE IX.—

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen
1881.	**WELL WATERS**—(continued.)				
Dec. 9th	132 and 133, Varna Road (Typhoid)	...	144·40	...	large
,, 12th	7 Court, Long Street	...	118·60	...	very large
,, ,,	420 and 422, Park Road, and 42, Soho Road	...	122·60	...	large
,, ,,	302 and 303, Heath Street	...	75·40	...	very large
,, ,,	40—42, Priestley Road	...	76·80	...	large
,, ,,	44 and 45, Priestley Road	...	86·40	...	,,
,, 13th	84 and 86, Summer Road	...	218·40	...	very large
,, 16th	183 and 184, Summer Lane	...	235·60	...	,,
,, ,,	185, Summer Lane	...	223·60	...	,,
,, ,,	3 Court, Sandy Lane	...	128·40	...	,,
,, ,,	59 and 61, Henley Street (Scarlet Fever)	...	133·80	...	...
,, ,,	9 Court, Long Street	...	69·40	...	moderate
,, ,,	258 and 260, Stratford Road (Typhoid)	...	58·40	...	large
,, 20th	Back 32, Icknield Port Road	...	201·60	...	,,
,, ,,	McClelland's Buildings, corner of Villiers St. and Wellington St.	...	76·60	...	moderate
,, ,,	44 and 46, Wright Street (Diarrhœa)	...	143·40	...	very large
,, ,,	59 and 60, Greenway St. (Diphtheria)	...	98·80	...	moderate
,, ,,	126, Greenway Street	...	130·40	...	very large
,, ,,	Denmark Villa, Coventry Road	...	104·40	...	moderate
,, 29th	280—282, Heath Street	...	97·60	...	...
,, ,,	141, Bloomsbury Street	...	162·40	...	rather large
,, ,,	82 and 83, Nechells Park Rd. (Scarlet Fever)	...	86·80	...	...
,, ,,	244 and 245, Nechells Park Road	...	82·40	...	rather large
,, ,,	318—321, Nechells Park Road	...	77·40	...	very large
,, 30th	Carter's Tin Works, Bolton Street	...	201·60	...	,,

(continued).

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contamination, Estimated	Chlorine.	Hardness.			REMARKS.
					Temporary.	Permanent.	Total.	
·002	3·08	3·081	30490	11·8	...	...	...	Clear
·006	3·08	3·085	30530	11·4	...	...	...	Clear
·003	3·08	3·082	30500	11·3	...	...	...	Clear
·008	2·42	2·426	23940	5·6	...	...	...	Clear
·004	·66	·663	6310	5·4	...	...	...	Clear
·007	2·53	2·535	25030	4·8	...	...	...	Clear
·002	7·48	7·481	74490	19·3	...	...	...	Clear
·004	7·92	7·923	78910	29·2	...	...	...	Clear
·003	8·58	8·582	85500	28·2	...	...	...	Turbid, with large floating particles
·005	4·18	4·184	41520	9·8	...	...	...	Clear
·027	2·42	2·442	24100	8·0	...	...	...	Clear
·003	1·54	1·542	15100	5·1	...	...	...	Clear
·005	·55	·554	5220	3·3	...	...	...	Clear
·010	6·93	6·938	69060	14·5	...	...	. .	Clear
·003	1·54	1·542	15100	6·0	...	...	...	Clear
·004	5·28	5·283	52510	10·0	...	...	...	Clear
·002	3·96	3·961	39290	9.5	...	...	...	Clear
·005	4·84	4·844	48120	12·9	...	...	...	Clear
·002	·55	·551	5190	6·2	...	...	...	Clear
·004	4·95	4·953	49210	10·3	...	...	...	Clear
·030	6·35	6·374	63420	9·8	...	...	...	Clear
·003	3·52	3·522	34900	7·9	...	...	...	Clear
·004	4·18	4·183	41510	3·3	...	...	...	Clear
·003	2·64	2·642	26100	4·7	...	...	...	Clear
·021	4·18	4·197	41650	34·1	...	...	...	Clear

TABLE X.

Return for the period 1st July, 1880, to 30th June, 1881, respecting the Vaccination of Children whose Births were registered in the Borough during the said period.

PARISH.	Number of Births returned in the "Birth List Sheets" as Registered.	Number of these Births duly entered in Columns 10, 11, and 13 of the "Vaccination Register" (Birth List Sheets), viz.:				Number of these Births which remained unentered in the "Vaccination Register" on account (as shown by Report Book) of			Number of these Births remaining neither duly entered in the "Vaccination Register" (cols. 3, 4, 5, and 6 of this Return) nor temporarily accounted for in the "Report Book" (cols. 8, 9, and 10 of this Return.
		Col. 10.	Col. 11.		Col. 13.				
		"Successfully Vaccinated."	"Insusceptible of Vaccination."	"Had Smallpox."	"Dead, Unvaccinated."	Postponement by Medical Certificate.	Removal to Districts the Vaccination Officer of which has been duly apprised.	Removal to places unknown or which cannot be reached; and Cases not having been found.	
1		3	4	5	6	8	9	10	11
Birmingham	9,009	7,868	6	—	867	59	61	148	—
Aston (within the Borough	5,538	4,609	6	—	570	29	5	301	18
Edgbaston (,, ,,)	465	378	1	—	38	15	11	15	7

Table of the Number of Deaths occurring in each Street in the Borough of Birmingham during the Year, 1881.

STREETS.	Zymotic Diseases	Other Diseases
A		
Abberley Street	2	1
Abbey Street	1	3
Aberdeen Street	1	9
A. B. Row		
Adam Street	1	24
Adderley Street	4	6
AdelaideStreet, Deritend	2	6
Adelaide St., Duddeston		
Albert Street, Deritend		4
Albert Street, All Saints	1	3
Albert St., St. Martin's		1
Albion Street		2
Alcester Street	1	16
Alexandra Road		
Alexandra Street	1	7
Alfred Street		
Allcock Street	2	12
Allesley Street		1
Allison Street	6	16
All Saints' Street		
Alma Crescent	1	4
Alma Street		3
Alston Street	3	4
Ampton Street		
Anderton Road		3
Anderton Street	1	5
Andover Street		
Angelina Street	7	23
Ann Street		1
Argyle Street	1	2
Armoury Road		
Arsenal Street		2
Arthur Road		3
Arthur Street	6	17
Ashted Row		14
Aston Brook Street	1	
Aston Road	7	21
Aston Street	2	7
Asylum Road		3
Auckland Road		9
Augusta Street		3
Augustus Road		1
Austin Street	1	5
Avenue Road		1
B		
Bacchus Road	1	7
Bagot Street	1	6
Bailey Street		
Baker Street	1	7
Balloon Street		
Balsall Heath Road		1
Balsall Street		
Banbury Street	1	4
Barford Road	3	2
Barford Street	6	28
Barford Street South	4	12
Barker Street	3	5
Barlow's Road		
Barn Street	1	13
Barrack Street		1
Barr Street	6	16
Barr Street West	2	6
Bartholomew Row		2
Bartholomew Street		7
Barwell Road		2
Baskerville Passage		1
Baskerville Place		2
Bath Passage		1
Bath Row		6
Bath Street		10
Beachfield road		1
Beach Street	2	13
Beak Street	1	
Bear Lane		
Beatrice Crescent		
Beaufort Road	1	5
Bedford Road	2	4
Belgrave Road		4
Bell Barn Road	7	30
Bellis Street		4
Bell Street		
Belmont Passage	2	1
Belmont Row	1	6
Benacre Street	1	24
Bennett's Hill		
Berkley Street		2
Berners Street	3	8
Beswick Street		
Betholom Row		1
Birchall Street	1	9
Bird Lane	1	
Bishopgate Street	1	21
Bishop St., St. Martin's		7
Bishop Street, St. Mary's		
Bishop Street South		5
Bissell Street	1	16
Blake Lane		
Blews Street	1	8
Blews Street West		5
Bloomsbury	3	8
Bloomsbury Street	2	13
Blucher Street	3	11
Bolton Road	3	14
Bolton Street South		2
Bond Street		
Bordesley Green	1	10
Bordesley Green Road		2
Bordesley Park Road	8	22
Bordesley Street	4	16
Bow Street	4	8
Bowyer Street		1
Bracebridge Street	2	11
Bradford Street	7	29
Braithwaite Road		1
Branston Street	2	1
Brasshouse Passage		
Brass Street	1	3
Bread Lane		
Bread Street, St. Paul's		2
Bread St., St. Thomas's		4
Brearley Street	7	21
Brearley Street West	4	15
Brewery St., Deritend		1
Brewery St., Nechells	1	4
Brewery St., Duddeston		4
Brickkiln Street		
Bridge Road		2
Bridge St., All Saints'		2
Bridge Street Duddeston		
Bridge Street St. Thomas		2
Bridge Street West	8	36
Bristol Road		16
Bristol Street	2	26
Broad Street	2	21
Bromsgrove Street	1	10
Brookfield Road		
Brook Road		
Brook Street		1
Broom Street		2
Brueton's Walk		
Buckingham Street		11
Buck Street	1	3
Bullock Road		
Bullock Street		
Bull Ring		
Bull Street		7
Burbury Street	6	13
Burlington Passage		1
Butler Street	1	6
Butler Street South	1	1
C		
Calthorpe Road		2
Cambridge Crescent		
Cambridge Street		4
Camden Drive		1
Camden Grove		
Camden Street	7	38
Camp Hill		7
Camp Street	1	4
Canal Street	2	6
Cannon Street		1
Cape Lane		
Cape Street		5
Cardigan Street	1	12
Carlisle Road		4
Carlisle Street		1
Caroline Street		6
Carpenter Road		2
Carr's Lane		
Cartland Road	1	1
Carver Street	2	12
Castle St. Market Hall	1	3
Castle Street, Deritend		
Cathcart Street	1	1
Cato Street	2	10
Cato Street North	1	6
Cattell Road	4	18
Cattell Grove	1	2
Cecil Street	3	15
Centre Row		1
Chad Road		1
Chandos Road		3
Chapel House Street		2
Chapel Street	1	4
Chapman Road		1
Charles Arthur Street	3	11
Charles Henry Street	6	19
Charlotte Road		2
Charlotte Street	1	5
Chattaway Street	1	1
Cheapside	8	40
Cheatham Street	1	2
Chequers Walk		1
Cherry Street		
Cherry Wood Lane		4
Chester St., Ladywood		17
Chester St., Duddeston	1	2
Cheston Road	1	
Christ Church Passage		
Church Road, Duddeston	1	5
Church Road, Edgbaston		1
Church Street		3
Clarendon Road		
Clark Street	5	16
Claverdon Street	4	7
Claybrook Street	1	2
Clement Street		5
Cleve Terrace		1
Clissold Street		2
Cliveland Street	1	3
Coach Yard		5
Cook Street		3
Cooksey Road	1	8
Coleman Street	6	11
Coleshill Street	6	18
College Street	1	4
Colmore Row		2
Commercial Street		
Communication Row		10

STREETS.	Zymotic Diseases	Other Diseases
Constitution Hill ...	1	5
Conybere Street ...	5	11
Congreve Street ...		
Cope Street	1	7
Coplow Street ...	1	10
Coralie Street ...	1	1
Corporation Street ...	1	
Cotton Row		
Cotton Street		
Coventry Road ...	4	24
Coventry Street ...	1	7
Cowper Street ...		2
Cox Street	2	3
Coxwell Road ...		5
Crabtree Road ...	3	6
Cranemore Street ...		2
Cregoe Street	3	12
Crescent		7
Crescent Wharf ...		
Cromwell Street ...	9	12
Crooked Lane		
Cross Street	2	2
Cuckoo Road	3	9
Cumberland Street ...	1	1
Curzon Street	1	6
Cuthbert Road ...		1
D		
Dale End		5
Dartmouth Street ...	1	16
Dart Street		2
Darwin Street ...	7	28
Dawson Street ...		5
Dean Street		5
Dearman Road ...	1	1
Derby Street	1	2
Devon Street		14
Devonshire Street ...	2	12
Digbeth	4	11
Digby Street		3
Doe Street		
Dolman Street ...	1	7
Dolobran Road ...		5
Drury Lane		2
Duchess Road... ...		1
Duddeston Mill Road ...		7
Duddeston Row ...		7
Dudley Road	5	10
Dudley Street		5
Dugdale Street ...	1	7
Duke Street		6
Dymoke Street . .		16
E		
Eastern Road		
Easy Row		2
Eden Place		
Edgbaston Road ..		
Edgbaston Street ...		3
Edmund Street ..		2
Edward Road		
Edward Street ..	2	13
Elkington Street ...		
Ellen Street	2	16
Ellis Street	2	7
Elvetham Road ...		3
Emily Street	4	11
Emmeline Street ...		2
Enfield Road		1
Engine Street		1
Erasmus Road ...	1	9
Ernest Street		
Erskine Street	1	2
Essex Street		1
Essington Street ...	1	9
Exeter Row		3
Eyre Street	1	2
F		
Factory Road		2
Falconer Road ...	1	2
Farm Road		1
Farm Street	11	41
Fawdry Street ...		3
Fazeley Street ...	3	11
Fisher Street	2	10
Fleet Street		9
Floodgate Street ...	4	5
Florence Street ...		7
Fordrough Lane ...		
Fordrough Street ...	3	7
Ford Street	2	11
Forge Street		1
Foundry Road ...		2
Fowler Street		
Fox Street	1	4
Francis Road		2
Francis Street ...	1	19
Frankfort Street ...		9
Franklin Street ...		1
Frank Street		1
Frederick Road ...		
Frederick Street ...	2	5
Freeman Road ...	1	7
Freeman Street ...		2
Freeth Street	1	9
Friston Street ...	2	11
G		
Galton Street		3
Garbett Street ...	2	13
Garrison Lane ...	5	24
Garrison Street ...	2	4
Gas Street	1	
Geach Street	1	5
Gee Street		3
Gem Street		5
George Road		2
George Street		7
George Street West ...	4	21
Gibb Street		5
Gladstone Road ...		3
Glebe Passage... ...		
Glebe Street		2
Gloucester Street ...		2
Glover's Road ...		3
Glover's Street ...	2	10
Godwin Street... ...	2	6
Golden Hillock Road ...		2
Gooch Street		20
Goode Street		4
Goodrick Street ...		1
Gopsall Street ...		3
Gosta Green	1	3
Gough Road		5
Gough Street		6
Grace Road		5
Grafton Street... ...		2
Graham Street ...	1	7
Grange Road		9
Grantham Road ...		2
Grant Street		5
Granville Street ...		4
Great Barr Street ...	1	21
Great Brook Street ...	4	20
Great Charles Street ...		3
Great Colmore Street ...	6	23
Great Francis Street ...	3	18
Great Hampton Row ...	3	9
Great Hampton Street...	1	9
Great King Street ...	2	20
Great Lister Street ...	6	32
Great Queen Street ...		
Great Russell Street ...	7	36
Great Tindal Street ...	1	8
Greaves' Court ...		
Green Lane	3	19
Green's Court		
Green Street, Deritend		5
Green Street, All Saints'	1	3
Green's Village ...		4
Greenway Street ...	2	22
Grindstone Road ...		
Grosvenor Row ...		1
Grosvenor Street ...		1
Grosvenor Street West	6	23
Guest Street	2	2
Guildford Street ...	2	14
Gullet, St. Mary's ...		
Gullet, Deritend ...		
Gullet, St. Thomas's ...		
H		
Hagley Road		13
Halberton Street ...		1
Hall Hill Road ...		
Hall Street		6
Hampton Street ...	7	25
Hampton Row ...		
Handsworth New Road		
Hanley Street ...	1	6
Hanover Street ..		4
Harborne Road ...		2
Harding St. St, George's		12
Harding St., All Saints'	2	
Harford Street ...	1	2
Harrison's Road ...		1
Hatchett Street ...	3	8
Hawkes Street ...	3	10
Heath Mill Lane ...	2	9
Heath Street	11	23
Heath Street South ...		2
Heaton Street	1	13
Helena Street		1
Heneage Street ...	4	32
Henley Street	4	5
Henn Street		1
Henn's Walk		
Henrietta Street ...	1	8
Henry Street	2	12
Herbert Road	4	7
Hickman Road ...		1
Hick Square		
Hick Street	5	2
Highfield Road ...		1
Highgate Lane ...	1	6
Highgate Place ...		2
Highgate Street ...	7	14
High Park Street ...		6
High Street		4
High Street, Deritend ...	3	23
Hill Street	3	13
Hingeston Street ...	6	19
Hob Moor Lane ...		
Hockley Hill	3	1
Hockley Pool Road ...		
Hockley Street ...		7
Holborn Hill	1	11
Holland Street ...		6
Holliday Street ...	1	25
Hollier Street		7
Holloway Head ...	1	10
Holly Road		
Holt Street		11
Hooper Street	1	2
Hope St., (St. Martin's)	3	25
Hope St., (All Saints')...		3
Horse Fair		2
Hospital Street ...	7	38
Howard Place ...		3
Howard Street ...	2	8
Howe Street	2	11
Hubert Road		
Hubert Street	1	1
Humpage Road ...	1	1
Hunter's Lane ...		
Hunter's Vale		
Hurst Street		14
Hutton Street		3
Hyde Road	1	5
Hylton Street		

STREETS.	Zymotic Diseases	Other Diseases
I		
Icknield Port Road ...	11	31
Icknield Square ...		15
Icknield Street ...	1	27
Inge Street	3	4
Ingleby Street ...		7
Inkerman Street ...	1	12
Irving Street	8	23
Islington		
Islington Row ...		2
Ivy Lane	1	2
J		
Jamaica Row		
James Street		
James Turner Street ...	1	5
Jenkins Street ...		2
Jennens Row		5
Johnson Street ...		
Johnstone Street ...		6
John Street	2	11
K		
Keeley Street	2	1
Kelynge Street ...	1	9
Kendall Road		4
Kent Street	1	6
Kent Street North ...		3
Kenyon Street ...	2	7
Key Hill	1	17
King Alfred's Place ...	1	3
King Edward's Place ...		
King Edward's Road ...	1	8
Kingston Road ...		5
King Street		2
Kyott's Lake Road ...		3
Kyrwick's Lane ...	1	13
L		
Ladypool Lane ...		6
Ladywell Passage ...		
Ladywell Walk ...		5
Ladywood Road ...		16
Ladywood Grove ...		
Lancaster Street ...	1	18
Lander Street		1
Langley Road ...		
Lansdowne Street ...		3
Larches Street ...	1	7
Latimer Street ...	2	6
Latimer Street South ...	2	20
Lawden Road ...		8
Lawley Street ...	5	13
Lawrence Street ...		7
Lease Lane		7
Ledsam Street ...	5	12
Lee Bank Road ...	2	29
Lee Crescent		1
Lee Mount		
Leck Street	1	2
Lees Street		1
Legge Lane	1	2
Legge Street	2	10
Lench Street	1	10
Lennox Street ...	3	15
Leopold Street ...	2	7
Lichfield Street ...	2	9
Lilly Green	1	
Lingard Street ...	1	2
Lionel Street		8
Lister Street		1
Little Ann Street ...		4
Little Barr Street ...		
Little Bow Street ...		
Little Broom Street ...		1
Little Cannon Street ...		
Little Cherry Street ...	1	
Little Edward Street ...		2
Little Francis Street ...		1
Little Green Lane ...	2	15
Little Hill Street ...		
Little King Street ...	1	3
Little Shadwell Street...		
Liverpool Street ...		4
Livery Street	1	6
Lloyd Street		3
Lodge Road	5	18
Lombard Street ...		14
London 'Prentice Street		6
Long Acre	1	16
Longmore Street ...		2
Long Street		1
Lord Street	2	7
Louisa Street		
Loveday Street ...	1	8
Love Lane		3
Lower Camden Street ...		
Lower Dartmouth Street		7
Lower Darwin Street ...		
Lower Essex Street ...		14
Lower Fazeley Street ...	1	4
Lower Henry Street ...		
Lower Hospital Street...	1	7
Lower Hurst Street ...	2	9
Lower Hurst Street East		1
LowerKing Edward'sRd		5
Lower Lawley Street ...		
Lower Loveday Street...		1
Lower Pershore Street		
Lower Priory		3
Lower Russell Street ...		
Lowe Street		1
Lower Temple Street ...		
Lower Tower Street ...	1	23
Lower Trinity Street ...		7
Lower Windsor Street...		
Loxton Street	1	4
Ludgate Hill	1	3
Ludgate Hill Passage ...		
Lupin Street	2	9
M		
Macdonald St., St. Geo.	1	1
Macdonald St.,St Mrtn's		5
Main Street	3	9
Malvern Hill Road ...		5
Manchester Street ...		9
Manor Road		
Market Street	2	3
Mark Lane		3
Marroway Street ...		1
Marshall Street ...		9
Marshall Street South...		1
Mary Ann Street ...		2
Mary Street		
Masshouse Lne, St. Mtns		1
MasshouseLane, Edgbsn		
Meeting House Yard ...		
Meriden Street ...		8
Motchley Lane ...		1
Motchley Park Road ...		
Miles Street	3	17
Milk Street	3	13
Miller Street		14
Mill Lane		5
Mill Street, Duddeston		1
Mill Street, Ladywood...		
Milton Street		7
Milward Street ...		3
Minories		
Moat Lane		
Moat Row		2
Moilliett Street ...		2
Moland Street	3	18
Mole Street		2
Monmouth Street ...		
Montague Road ...		
Montague Street ...		1
Montgomery Street ...		3
Montpelier Street ...		5
Monument Road ...	3	32
Moore's Row		
Moorsom Street ...	1	1
Moor Street	2	6
Moreton Street ...		1
Morville Street ...	6	10
Moseley Road	1	26
Moseley Street ...	3	16
Mott Street	2	5
Mountfield Road ...		
Mount Pleasant ...		3
Mount Street, Deritend		2
Mount St.,Winson Green	2	6
Mount Street, Nechells		5
Musgrave Road ...	2	5
Muntz Street		10
N		
Navigation Street ...	1	13
Nechells Park Road ...	3	21
Nechells Place ...	2	8
Needham Street ...		
Needless Alley ...		
Nelson Street		4
Nelson Street South ...		12
Nelson Street West ...	5	12
New Bartholomew St. ...	1	3
New Bond Street ...		
New Bridge Street ...		
New Canal Street ...	3	12
New Church Street ...	1	2
Newdegate Street ...		1
New Edmund Street ...		
New England		
New Hall Hill... ...		9
New Hall Street ...		11
New Inkleys		10
New John Street ...	4	17
New John Street West...	14	55
New Market Street ...	1	1
New Meeting Street ...		1
New Spring Street ...	1	12
New Street		2
New Summer Street ...	1	21
Newton Street ...		1
Newtown Row ...	9	17
Nile Street		
Nineveh Road... ...		
Noel Road		2
Norfolk Road		1
Norfolk Street... ...		1
Norman Street ...		3
Northampton Street ...		3
Northbrook Street ...	2	4
Northumberland Street		3
North Warwick Street...		
Northwood Street ...	2	8
North Street		
Norton Street	2	4
Nova Scotia Street ...		9
Nursery Road		1

STREETS.	Zymotic Diseases	Other Diseases
O		
Old Cross Street ...		7
Old Inkleys		
Old Meeting Street ...		
Old Square		2
Oliver Road		1
Oliver Street	2	6
Oozells Street		2
Oozells Street North ...		2
Ormond Street ...	1	11
Osler Street	2	7
Oughton Place ...		1
Outlet Road		
Owen Street		10
Oxford Street		7
Oxygen Street... ..		2
P		
Paddington Street ...	2	2
Pakenham Road ...		1
Palmer Street... ...	2	13
Parade	1	7
Paradise Street ...		1
Parker Street		11
Park Lane	1	6
Park Road, All Saints'	7	42
Park Road, Edgbaston		1
Park Street		10
Parliament Street ...	1	5
Paxton Road		6
Pebble Mill Road ...		1
Peel Street		7
Penn Street, Deritend ...	2	4
Penn Street, Duddeston		2
Pershore Road ..		13
Pershore Street ..	1	7
Phillips St., Market Hall		1
Phillips St., St. George's	2	5
Pickford Street ...	7	3
Piddock Street ...		
Pigott Street	1	5
Pinfold Street... ...		4
Pitney Street		
Pitsford Street ..	1	5
Plough & Harrow Road		
Pope Street	2	12
Poplar Avenue ...		2
Porchester Street ...		3
Port Hope Road ..		1
Portland Road ...		
Potter Street		3
Poultry		
Powell Street		2
Prescott Street ...	3	12
Price Street	2	14
Priestley Road ...	1	5
Primrose Hill		
Princes Row	2	2
Princes Street... ...	1	
Princess Road... ...		1
Princip Street... ...		4
Priory Road	1	
Pritchett's Lane ...		
Pritchett Street ...	5	18
Proctor Street... ..		7
Prospect Row	1	3
Q		
Queens Street... ..		
R		
Radnor Street... ...	2	1
Railway Ter., Duddeston	1	9
Railway Ter., Nechells	2	4
Rann Street	1	2
Ratcliffe Place ...		
Ratcliffe Street ...		
Ravenhurst Street ...		8
Rawlins Street ...		9
Rea Street	6	6
Rea Street South ...		3
Regent Parade ...		
Regent Park Road ...	1	
Regent Place		1
Regent Row	1	1
Regent Street		2
Reservoir Retreat ...	1	2
Reservoir Road ...		5
Richard St., Nechells ...	4	11
Richard St., St. Paul's	1	
Richmond Hill Road ...	1	
River Street		3
Rocky Lane	1	4
Rodway Street ...		1
Rope Walk	1	1
Rotton Park Road ...		2
Rotton Park Street ..		1
Rowland Street ..	1	4
Rupert Street	2	15
Russell Street		
Ruston Street	1	6
Ruston Street North ...		9
Ryland Road		9
Ryland Street, Deritend	1	2
Ryland St., Ladywood		4
Ryland Street North ..	2	5
S		
Salop Street		
Saltley Road	2	10
Saltley Street	1	2
Sampson Road ..	2	8
Sampson Road North ...	3	3
Sandon Road		2
Sand Pits ..		3
Sand Street ...		1
Sandy Lane	1	6
Sarah Street		
St. Andrew's Road ...	2	6
St. Clement's Road ..		1
St. George's Crescent ...		
St. George's Street . .	7	10
St. George's Place ...	2	1
St. George's Terrace ...		
St. James' Place ..		9
St. James' Road ...		
St. James' Street ...		3
St. Luke's Road ...		24
St. Mark's Street .		6
St. Mark's Street West	1	1
St. Martin's Lane ...		
St. Martin's Place ..		3
St. Martin's Row ...		1
St. Martin's Street ...	1	10
St. Mary's Row ...		3
St. Mary's Street . .		4
St. Paul's Square ...		2
St. Peter's Place ...		1
St. Philip's Church Yard		1
St. Stephen's Street ...		
St. Vincent Street ...	1	20
Scholefield Street	3	18
Scotland Passage ...		
Scotland Street ...		2
Scott Street		1
Severn Street	2	3
Seymour Street ..		3
Shadwell Street ..	1	3
Shakespeare Road ..	2	6
Sheepcote Lane ...	2	3
Sheepcote Street ...	2	8
Sheep Street	5	6
Sherborne Street ...	3	20
Sherlock Street ...	3	28
Shutt Lane		
Sidney Road		1
Silver Street		1
Sir Harry's Road ...		2
Skinner Lane	2	5
Skinner Street ...		2
Slaney Street		3
Sloe Lane		1
Smallbrook Street ...		8
Smithfield Passage ...		2
Smithfield Street ...		
Smith Street, St. George's	4	14
Smith Street, Duddeston		1
Snape Street ...		5
Snow Hill	1	9
Soho Road	1	3
Somerset Road ...		
Somerset Street ..		2
South Road	2	6
Spark Street		1
Speaking Stile Walk ...		1
Speedwell Road ...		1
Spencer Street ...		6
Spiceal Street		1
Spon Terrace		
Spooner Street ...		2
Springfield Street ...	2	6
Spring Hill		10
Spring Hill Passage ..	1	
Spring Road		8
Spring Vale		2
Stafford Street ...		5
Stanhope Street ...		3
Staniforth Street ..		12
Stanley Road		1
Station Road		
Steelhouse Lane ...	1	16
Stella Street		1
Stephenson Place ...		1
Stephenson Street .		1
Stirling Road		1
Steward Street ..	1	15
Stewart Street ...	1	5
Stoke Street		9
Stone Yard		4
Stoney Lane		
Stour Street	4	9
Stratford Place ..		1
Stratford Road ..	1	4
Stratford Street ..		4
Suffolk Street... ...	4	16
Summer Hill . ..		14
Summer Hill Road ..	1	2
Summer Hill Street ...	6	12
Summer Hill Terrace ...		2
Summerfield Road ..		1
Summer Lane	11	30
Summer Row		1
Summer Road... ...	2	6
Summer St., Edgbaston	1	
Sun Street	1	13
Sun Street West ...		4
Sutton Street		2
Swallow Street ...		2
Swan Passage... ...		
T		
Talbot Street .	1	12
Talfourd Street ..	2	3
Tanter Street	1	6
Taylor Street		1
Temple Field Street ...	2	7
Temple Row		
Temple Row West ..		
Temple Street... ...		
Tenby Street		
Tenby Street North ..		

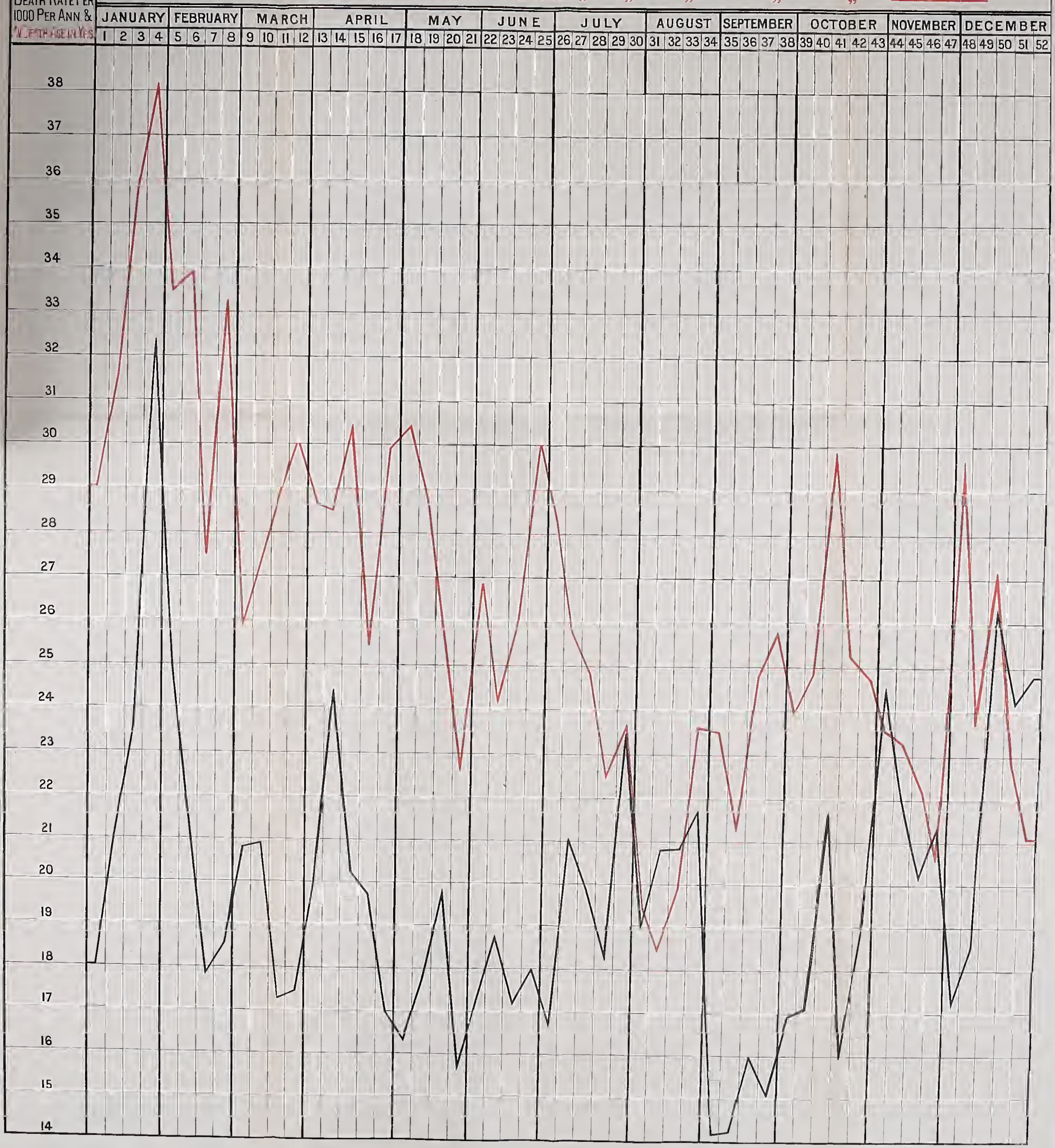
STREETS.	Zymotic Diseases	Other Diseases
Tennant Street ...	4	13
Theodore Street ...		11
Theresa Road	1	4
Thimble Mill Lane ...		6
Thomas St., St. Mary's		3
Thomas Street, Deritend	1	7
Thorp Street	2	3
Tillingham Street ...	1	5
Tindal Street	2	4
Tonk Street		
Tower Street	4	22
Trafalgar Road ...		2
Trent Street		6
Trinity Terrace ...		1
Turner Street	3	8
Tyndall Street... ...		9
U		
Unett Street	4	20
Union Passage ...		
Union Street		
Union Terrace ...		
Upper Dean Street ...		
Upper Gough Street ...		4
Upper Highgate Street	2	4
Upper Hockley Street...		
Upper Hospital Street...	2	18
Upper Marshall Street...		
Upper Mill Lane ...		
Upper Priory		2
Upper Ryland Road ...		7
Upper Tower Street ...		4
Upper Trinity Street ...	3	11
Upper Windsor Street...		
V		
Vale Street		1
Varna Road		7
Vaughton Street ...	2	17
Vaughton Street South		3
Vauxhall Grove ...		
Vauxhall Road ...	2	8
Vauxhall Street ...	1	1
Vere Street		7
Vicarage Road ...		2
Victoria Grove ...		1
Victoria Street ...	1	3
Villa Street	4	9
Villiers Street... ...		2
Vine Street		
Vittoria Street... ...		4
Vyse Street	1	1
W		
Walter Street	1	4
Ward Street	1	9
Warner Street... ...	1	5
Warstone Lane ...	2	9
Warstone Parade ...		2
Warwick Street ...	3	15
Washington Street ...		5
Waterloo Street ...		2
Water Street		7
Waterworks Road ...		5
Watery Lane	9	32
Weaman Row	1	5
Weaman Street ...	1	13
Wellesley Street ...		1
Wellington Passage ...		
Wellington Road ...		4
Wellington Street ...	1	6
Well Lane		
Well Street	3	28
Westbourne Road ...		
Western Road... ...		
Westfield Road ...		1
Westley Street ...	2	3
Weston Street... ...	1	2
Wharf Lane		4
Wharf St., All Saints ...		3
Wharf St., St. Thomas's	2	15
Wharf Street, Deritend		
Wharf St., Duddeston ...		4
Wharton Street ...		
Wheeler Street ...	2	14
Wheeley's Lane ...		1
Wheeley's Road ...		3
White Lion Passage ...		
White Road	1	9
Whitmore Road ...	1	1
Whitmore Street ...	1	13
Whittall Street ...		5
Wiggin Street... ...		
William Edward Street	2	4
William Henry Street ...	1	7
William St., St. Thomas'	5	13
William Street, Deritend		3
William Street North ...		5
Willis Street	4	16
Willow Avenue ...		1
Wilton Street		5
Windmill Street ...		6
Windsor Street ...	1	15
Winson Green Road ...	3	8
Winson Street... ...	4	10
Witton Street		5
Woodbourne Road ...		2
Woodcock Street ...		11
Wood St., St. Thomas'		4
Wood Street, Ladywood		4
Worcester Street ...		3
Worcester Wharf ...		
Wordsworth Road ...		
Wrentham Street ...	2	6
Wright Street	3	0
Wrottesley Street ...	1	1
Wyndcliffe Road ...		4
Wyndham Road ...		1
Wynn Street	2	18
X		
Y		
Yew Tree Road ...		
York Passage		
York Road	1	2
York Street		
Z		
ADDENDA.		
Great Western Railway		3
Hockley Railway Station		1
Soho Railway Station ...		1
Winson Green Railway Station		1
Snow Hill Ry. Station...		1
Birmingham & Warwick Canal		2
Birmingham & Fazeley Canal		4
Old Birmingham Canal	1	6
Birmingham&Worcester Canal		1
Pebble Mill Pool ...		1
River Rea		1
AT INSTITUTIONS		
General Hospital ...	15	224
Queen's Hospital ...	4	115
Children's Hospital ...	36	47
Workhouse	17	528
Asylum	1	77
Gaol	2	4
Women's Hospital, Crescent ...		
Eye Hospital		1
Blind Institution ...		
Borough Hospital ...	34	
Homœpathic Hospital...	1	9
TOTALS ...	1128	6810

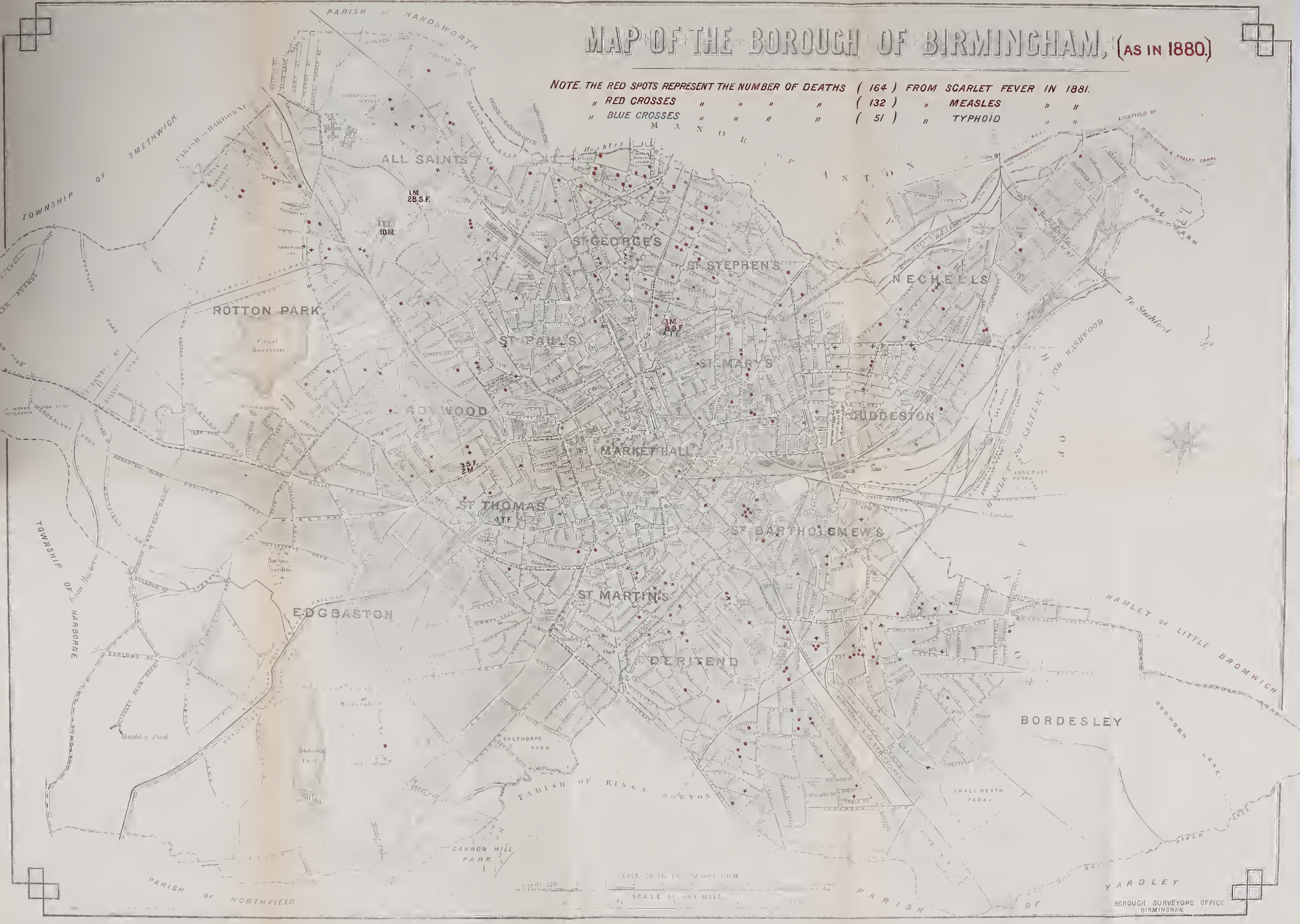
Grand Total ... 7938

1881

TOTAL DEATH RATE FROM ALL CAUSES SHEWN IN WEEKLY PERIODS THUS ————

AVERAGE AGE AT DEATH " " " " " ————





MAP OF THE BOROUGH OF BIRMINGHAM, (AS IN 1880.)

NOTE. THE RED SPOTS REPRESENT THE NUMBER OF DEATHS (164) FROM SCARLET FEVER IN 1881.
" RED CROSSES " " " " (132) " MEASLES " "
" BLUE CROSSES " " " " (51) " TYPHOID " "

REPORT

ON

ADULTERATION.

Borough Analyst's Laboratory,
The Council House,
March 25th, 1882.

TO THE HEALTH COMMITTEE.

Mr. Chairman and Gentlemen,

I beg to report that during the year 1881, I analysed 197 articles of food and drink, the particulars of which are given in the annexed statement :—

List of Articles Analysed

No.	Date.—1881.	Articles.	Remarks.
1009—	Jan. 11th	Milk	Genuine.
1010—	„ 11th	Milk	Genuine.
1011—	„ 11th	Milk	Genuine.
1012—	„ 11th	Milk	Genuine.
1013—	„ 17th	Mustard	Genuine.
1014—	„ 17th	Mustard	Genuine.
1015—	„ 17th	Mustard	Adulterated with 20 % of wheat flour.
1016—	„ 17th	Mustard	Genuine.
1017—	„ 17th	Mustard	Genuine.
1018—	„ 17th	Mustard	Genuine.
1019—	„ 21st	Flour	Genuine.
1020—	„ 21st	Flour	Genuine.
1021—	„ 21st	Flour	Genuine.
1022—	„ 21st	Flour	Genuine.
1023—	„ 21st	Flour	Genuine.
1024—	„ 21st	Flour	Genuine.
1025—	Feb. 2nd	Milk	Nearly Genuine.
1026—	„ 2nd	Milk	Genuine.
1027—	„ 2nd	Milk	Adulterated with 16 % water. Fined 10s. and costs.
1028—	„ 2nd	Milk	Adulterated with 8·5 % water, and deprived of 35 % cream. Fined 30s. and costs.
1029—	„ 4th	Milk	Adulterated with 3½ % water, and deprived of 20 % of cream.
1030—	„ 4th	Milk	Genuine.
1031—	„ 4th	Milk	Genuine.
1032—	„ 4th	Milk	Nearly Genuine.
1033—	„ 17th	White Pepper	Genuine.
1034—	„ 17th	White Pepper	Genuine.
1035—	„ 17th	White Pepper	Genuine.
1036—	„ 17th	White Pepper	Genuine.
1037—	„ 17th	White Pepper	Genuine.
1038—	„ 17th	White Pepper	Genuine.
1039—	„ 23rd	Milk	Adulterated with 2½ % water, and deprived of 35 % of its cream. Fined 10s. and costs.
1040—	„ 23rd	Milk	Adulterated with 16½ % water. Fined 20s. and costs.
1041—	„ 23rd	Milk	Adulterated with 8½ % water, and deprived of 20 % of its cream. Fined £4 and costs.

List of Articles Analysed *continued*

No.	Date.—1881.		Articles.	Remarks.
1129—	Sept.	23rd	Milk	Adulterated with 7·3 % water.
1130—	„	23rd	Milk	Adulterated with 7 % water.
1131—	„	23rd	Milk	Adulterated with 8 % water.
1132—	„	23rd	Milk	Genuine.
1133—	„	28th	Carbonate of Soda	Genuine.
1134—	„	28th	Ground Rice	Genuine.
1135—	„	28th	Ground Rice	Genuine.
1136—	„	28th	Carbonate of Soda	Genuine.
1137—	„	28th	Carbonate of Soda	Genuine.
1138—	„	28th	Carbonate of Soda	Genuine.
1139—	„	28th	Ground Rice	Genuine.
1140—	„	28th	Ground Rice	Genuine.
1141—	„	28th	Carbonate of Soda	Genuine.
1142—	„	30th	Black Tea	Genuine.
1143—	„	30th	Black Tea	Genuine.
1144—	„	30th	Black Tea	Genuine.
1145—	„	30th	Black Tea	Genuine.
1146—	„	30th	Black Tea	Genuine.
1147—	„	30th	Black Tea	Genuine.
1148—	Oct.	3rd	Milk	Genuine.
1149—	„	3rd	Milk	Adulterated with 16 % water.
1150—	„	3rd	Milk	Adulterated with 18 % water.
1151—	„	3rd	Milk	Adulterated with 10 % water. Fined 10s. and costs.
1152—	„	20th	Milk	Nearly Genuine (slightly creamed).
1153—	„	20th	Milk	Adulterated with 21 % water. Fined £10 and costs.
1154—	„	21st	Milk	Genuine.
1155—	„	21st	Milk	Adulterated with 4½ % water. Cautioned by Health Sub-Committee
1156—	„	21st	Milk	Adulterated with 5½ % water. Cautioned by Health Sub-Committee.
1157—	„	21st	Milk	Adulterated with 26 % water. Fined £10 and costs.
1158—	Nov.	2nd	Oatmeal	Genuine.
1159—	„	2nd	Oatmeal	Genuine.
1160—	„	2nd	Oatmeal	Genuine.
1161—	„	2nd	Oatmeal	Genuine.
1162—	„	2nd	Oatmeal	Genuine.
1163—	„	2nd	Oatmeal	Genuine.
1164—	„	8th	Milk	Genuine (nearly).
1165—	„	8th	Milk	Genuine.
1166—	„	8th	Milk	Adulterated with 23 % water. Fined £5 and costs.
1167—	„	8th	Milk	Adulterated with 12½ % water. Fined £2 and costs.
1168—	„	19th	Butter	Consisted of Butterin.
1169—	„	19th	Butter	Consisted of Butterine.
1170—	„	19th	Butter	Consisted of Butterine.
1171—	Nov.	25th	Butter	Consisted of Butterine. Fined 20s and costs.
1172—	„	25th	Butter	Genuine.
1173—	„	25th	Butter	Genuine.

List of Articles Analysed *continued*

No.	DATE.—1881.	ARTICLES.	REMARKS.
1174—	Nov. 26th	... Butter	Genuine.
1175—	Dec. 13th	... Coffee	Genuine.
1176—	„ 13th	... Coffee	Genuine.
1177—	„ 13th	... Coffee	Genuine.
1178—	„ 13th	... Coffee	Genuine.
1179—	„ 13th	... Coffee	Genuine.
1180—	„ 13th	... Coffee	Genuine.
1181—	„ 21st	... Pepper (white)	Genuine.
1182—	„ 21st	... Mustard	Genuine.
1183—	„ 21st	... Pepper (white)	Genuine.
1184—	„ 21st	... Mustard	Genuine.
1185—	„ 21st	.. Pepper (black)	Genuine.
1186—	„ 21st	... Mustard	Genuine.
1187—	„ 21st	... Mustard	Genuine.
1188—	„ 21st	... Pepper (white)	Genuine.
1189—	„ 21st	... Mustard	Genuine.
1190—	„ 21st	... Pepper (white)	Genuine.
1191—	„ 21st	... Pepper (white)	Genuine.
1192—	„ 21st	... Mustard	Genuine.
1193—	„ 31st	... Bermuda Arrowroot	Genuine.
1194—	„ 31st	... Coffee	Genuine.
1195—	„ 31st	... Bermuda Arrowroot	Genuine.
1196—	„ 31st	... Bermuda Arrowroot	Genuine.
1197—	„ 31st	... Bermuda Arrowroot	Genuine.
1198—	„ 31st	... Coffee	Genuine.
1199—	„ 31st	... Bermuda Arrowroot	Genuine.
1200—	„ 31st	... Bermuda Arrowroot	Genuine.
1201—	„ 31st	... Coffee	Genuine.
1202—	„ 31st	... Bermuda Arrowroot	Genuine.
1203—	„ 31st	... Coffee	Genuine.
1204—	„ 31st	... Bermuda Arrowroot	Genuine.

The articles submitted to me comprised the following groups :—

59	Samples of	Milk.
30	„	Tea.
22	„	Coffee.
18	„	Mustard.
12	„	Pepper.
12	„	Flour.
11	„	Butter.
8	„	Arrowroot.
6	„	Ale.
6	„	Oatmeal.
5	„	Carbonate of Soda.
4	„	Ground Rice.
4	„	Brandy.
Total ... 197	Samples.	

Percentage of Adulteration since 1873

The subjoined statement shows the number of samples analysed and the percentages of Adulteration in each year since 1872 :—

PROPORTION OF ADULTERATED ARTICLES PER 100 SAMPLES ANALYSED OF THE FOLLOWING COMMODITIES :—

Years.	Number of Samples Analysed.	Total Percentage of Adulteration.	Percentage of Adulteration of undermentioned Articles.								
			Milk.	Bread and Flour.	Butter.	Groceries.	Wines.	Beer.	Spirits.	Drugs.	Other Articles
1873	87	65	75	0	0	87	—	—	—	100	100
1874	79	42	67	0	66	16	—	0	100	—	—
1875	73	38	55	0	—	36	100	—	—	25	—
1876	92	33	30	—	—	19	—	33	25	36	62
1877	176	40	58	0	—	12	—	21	36	26	31
1878	158	21	57	0	0	10	0	13	26	—	—
1879	168	25	60	0	0	5	—	16	—	—	0
1880	178	21	46	0	0	0	—	0	—	—	0
1881	197	23	54	0	36	8	—	0	50	0	0

Out of the 197 samples examined last year, 45 or very nearly 23 per cent. had been tampered with ; the percentage of adulterated samples in 1880 was 21.

Milk

The amount of adulteration of the Milk samples examined is about the same as last year, viz :—54 per cent. It is very important that this article of food should be provided genuine, seeing how much the well being of children and the restoration of the sick depend upon its quality. It is *par excellence* the article of food above all others which suffers adulteration, and the risks of its sophistication are increased by the large number of hands through which it frequently passes, between the farmer and the retail dealer. Sometimes the milk is found to be already adulterated when delivered at the railway station, but more frequently it is impoverished after its arrival. The sophistication assumes two forms, the abstraction of cream, and the addition of water; the former is a serious fraud, as it diminishes very largely the food value of the article, and where milk for medical reasons is employed, largely on account of the fat it contains, such an abstraction must act very unfavourably on the influence of the remedy for good, defeating the object of the physician and retarding the recovery of the patient. The latter is equally fraudulent and has the additional drawback that it may lead to the introduction of dangerous impurities with the water, exposing the consumer, as has been found on many occasions, to Typhoid Fever and other serious and fatal diseases.

Flour

The usual purity was found to characterise the Flour, a very important fact in connection with an article which is the main constituent of what is appropriately called the "staff of life."

Coffee

Butter

Brandy

Six of the Coffees contained an admixture of Chicory, while four of the so-called Butters were in reality Butterine, and were designated by the former name in order that they might command a better price. Two of the Brandies contained a larger proportion of water than is allowed by law, one being seven degrees and the other eight degrees below the fixed limit.

I remain,
Mr. Chairman and Gentlemen,
Your obedient Servant,
ALFRED HILL, M.D., F.I.C.,
Borough Analyst.

INDEX.

PAGE

Abattoir 41
Adulteration, percentage of . . 94
Adulteration, Report of . 89—95
Advice of Medical Officer of Health 36, 37
Ages at Death 11
Animals, Keeping of . . . 32
Articles Analysed . . . 89—93
Articles, Disinfection of . . 46
Area of Borough 4
Atmosphere, Vitiation of . . 32
Average Age at Death . . . 11

Baths 48
Births 5, 6
Birthrate 6
Borough Asylum and Typhoid Fever 36
Borough Hospital . . . 43—46
Brandy 95
Butter 95
Buildings, Foundations of . . 32
Bye-laws (Sanitary), Duties under 41, 42

Canal Boats' Act 42
Causes of Death, Specified 14—22, 24, 25
Cellar Drains 32
Census 1871 and 1881 . . . 3
Chart of Average Death-age . . App
,, Mortality and Meteorology . —
Climatic Conditions, Influence of 27, 28
Coffee 95
Constitutional Diseases . . . 23
Continued Fever . . . 18, 19
Cowsheds 42
Classification of Diseases and Deaths 14, 24, 25, 54

Dairies 42
Death-age, Average . . . 11
Death, Certification of Causes of . 33
Death, Specified Causes of . . 14
Death rate in Birmingham . . 7
,, causes of reduction . 8
,, ,, compared . 9
Deaths 7, 25, 26
,, at various ætal periods . . 11
,, in Registration Sub-Districts . 9

PAGE

Deaths in Streets . . . 81—85
,, in Wards 10
,, not Certified . . . 33
,, under five years of age . 12
,, Violent 23
Density of Population . . . 4
Developmental Diseases . . . 23
Diarrhœa 15
,, Local Government Board Enquiry . . . 16
Disease, Causes, Origin, and Distribution of 35
Disease, New Cases of, in Institutions, &c. 59
Disease Map 22
Diseased Meat . . . 38—41
Disinfecting Station . . 46, 47
Diphtheria 19
Drainage Defects 32
Dwellings unhealthy . . . 30

Epidemic Disease . . . 14, 37
Elevation of Borough . . . 4
Excrement Disposal . . 30, 49

Fever 18
Fog 28, 32
,, Influence of, on Mortality . 28
Food Analysed . . . 89—95
,, and Fuel, Prices of . . 58
,, Unwholesome . . . 38
Foundation of Houses . . . 32

Geological Position of Borough . 4

Houses let in Lodgings . . . 41
House Refuse 49
Houses Unfit for Habitation . . 56

Infant Mortality . . . 11—13
Infectious Disease 37
,, ,, Notification of 33—35, 37
,, ,, Outbreaks of . . 37
,, ,, and Schools . 35
,, ,, and Trades . . 35
Influences Affecting Health . 30—35
Inspection 49

PAGE

Institutions, Sickness in . . . 59
Interception System 49

Life, Œconomy of 7
Local Diseases 23
Local Government Board's Enquiry into the Causes of Diarrhœa . 16
Lodging Houses 41
Lunatic Asylum, Report on . 36, 37

Map, Disease . . . . . App
Marriages 5
Measles 18, 37
Meteorological Stations . . . 17
Meteorology 26
,, and Disease . 27, 28
Middens 49
Milk 94
Milk Shops 42
Mortality 7, 25
,, and Meteorology Chart . —
,, Analysis of . 13, 24, 25
,, Infant . . . 11, 13
,, in Institutions . . 8
,, Tables 4, 8—15, 21, 24, 25, 52—55, 81 - 85
,, Zymotic . . 14, 22
Mortuaries 47

Nightsoil Refuse Disposal . . 49
Nosological Tables 14, 24, 25, 54, 55, 59
Notification of Infectious Diseases Bill 34, 35
Nuisances, Abatement of 49, 56, 57

Œconomy of Life 7
Offensive Trades . . . 42, 43

Pan System of Interception . . 49
Pauperism 58
Paving of Streets and Roads . . 49
Population 3
,, Natural Increase of . 4
Precautions against spread of Scarlet Fever 45
Preventable Disease . . 14—22
Prices of Food and Fuel . . . 58
Public Baths 48
,, Mortuaries 47

PAGE

Rainfall 27, 58
Refuse Disposal 49
,, Building on . . . 32
Registration Sub-districts, Mortality in 9
Reports, General 43
,, Special . . 36, 37, 45

Sanitary Analyses 48
,, Bye-laws, Action under 41, 42
,, Work . . 49, 56, 57
Sanitation . . . . 30—50
Scarlet Fever . . 17, 18, 37
Schools 35
Sewerage Works 48
Sickness in Institutions . . 59
Slaughter Houses 41
Small Pox . . . . 19—22
Smoke Nuisance . . . 32, 57
Soil, Impure 32
Specified Causes of Death 14, 24, 25
Statistics, Vital . . . 3—29
Streets and Roads, Paving of . 49
,, ,, ,, Deaths in 81—85
Surface Filth . . . 30—32

Tallow Melting 43
Tanning 42
Temperature, Influence of . . 16
Trades and Infectious Disease . 35
Typhoid Fever 18, 19
,, ,, at Borough Asylum . 36
Typhus 18, 19

Uncertified Deaths . . . 33
Unwholesome Food . . . 38

Vaccination 6
Varnish Works 43
Violent Deaths . . . 23—25
Vital Statistics . . . 3—29

Wards, Mortality in . . . 10
Water Supply, Corporation . . 47
,, ,, from Shallow Wells . 17
,, Results of Analysis of . 60—79
Whooping Cough . . . 15, 37

Zymotic Death-Rate . . . 14
,, Disease 14

CORRIGENDA.

In the 1880 Report, on page 9, line 27 from bottom 5th vertical column, for 17·8, read "17·2."

The same correction is required on page 10, line 15 from bottom, 3rd vertical column, also on page 42 at the top of the 4th vertical column of figures.

On page 47, 11th line from top, for "Gauge 8 inches diameter" read "Gauge 1 foot diameter," and for "8 inches above" read "3 feet 8 inches above."